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CATALOGUE

OF THE

NEW HAMPSHIRE COLLEGE

OF

AGRICULTURE AND THE MECHANIC ARTS

DURHAM, NEW HAMPSHIRE

1904-1905

Printed and Bound by Rumford Printing Co., Concord.

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CALENDAR.

1904

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COLLEGE CALENDAR.

1904.

Sept. 6-7. Examinations for admission begin Tuesday at 9 a. m.

Sept. 8. Regular college exercises begin Thursday at 10 a. m.

Oct. 12. Stated meeting of Trustees.

Dec. 23. First term ends Friday night.

WINTER VACATION.

1905.

Jan. 10. Second term begins Tuesday at 10 a. m.

Jan. 11. Stated meeting of Trustees.

March 22. Second term ends Wednesday night.

SPRING VACATION.

March 28. Third term begins Wednesday at 10 a. m.

April 12. Stated meeting of Trustees.

June 4. Baccalaureate sermon, Sunday.

June 6. Stated meeting of Trustees.

June 6. Prize drill, Tuesday a. m.

June 6. Smyth prize reading and speaking Tuesday evening.

June 7. Commencement day, Wednesday.

SUMMER VACATION.

Sept. 5-6. Examinations for admission begin Tuesday at 9 a. m.

Sept. 7. Regular college exercises begin Thursday at 10 a. m.

Oct. 11. Stated meeting of Trustees.

Dec. 22. First term ends Friday night.

1906.

Jan. 9. Second term begins Tuesday at 10 a. m.

BOARD OF TRUSTEES.

His Excellency Gov. NAHUM J. BACHELDER, M. S., A. M., *ex officio, President.*
Hon. GEORGE A. WASON, New Boston.
Pres. WILLIAM D. GIBBS, Durham, *ex officio.*
CHARLES W. STONE, A. M., East Andover.
Hon. LUCIEN THOMPSON, Durham, *Secretary.*
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GEORGE B. WILLIAMS, Walpole.
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Hon. ROSECRANS W. PILLSBURY, Londonderry.
Hon. RICHARD M. SCAMMON, Stratham.
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HARRY E. BARNARD, B. S., Concord.

WALTER M. PARKER, A. B., Manchester, *Treasurer.*

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CHARLES L. PARSONS, B. S., *Professor of General and Analytical Chemistry.*

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E. DWIGHT SANDERSON, M. S., *Professor of Zoology and Entomology.*

———————— *Professor of Military Science and Tactics.*

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JOSEPH H. HAWES, *Associate Professor of Drawing.*

RICHARD WHORISKEY, JR., A. B., *Associate Professor of Modern Languages.*

E. R. GROVES, A. B., B. D., *Associate Professor of English and Philosophy; Secretary of the Faculty.*

EDWARD L. SHAW, B. S., *Assistant Professor of Agriculture.*

JOHN N. BROWN, *Instructor in Machine Work.*

IVAN COMINGS WELD, *Instructor in Dairying.*

EDWARD H. HANCOCK, B. S., *Instructor in Mechanism and Woodwork.*

HENNING V. HENDRICKS, B. S., *Instructor in Physics and Electrical Engineering.*

HARRY F. HALL, *Instructor in Horticulture.*

A. R. ROSE, B. S., *Instructor in Chemistry.*

JOHN C. BRIDWELL, B. S., *Assistant in Zoology and Botany.*

MABEL E. TOWNSEND, A. B., *Associate Librarian, Registrar.*

EXECUTIVE OFFICE.

EDITH M. DAVIS, *Purchasing Agent.*

LENA B. ROWLEY, *Bookkeeper.*

ENGINEER AND CURATOR OF BUILDINGS.

OSCAR W. STRAW.

AGRICULTURAL EXPERIMENT STATION.

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Hon. GEORGE A. WASON . . .	New Boston
CHARLES W. STONE, A. M., *Secretary*	East Andover
Hon. WARREN BROWN . . .	Hampton Falls
Pres. WILLIAM D. GIBBS, *ex officio* .	Durham

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FRED W. MORSE, M. S., *Chemist and Vice-Director.*
FRANK WILLIAM RANE, B. Ag., M. S., *Horticulturist.*
FREDERICK W. TAYLOR, B. S., *Agriculturist.*
E. DWIGHT SANDERSON, M. S., *Entomologist.*
EDWARD L. SHAW, B. S., *Associate Agriculturist.*
IVAN C. WELD, *Dairy Manufactures.*
HARRY F. HALL, *Associate Horticulturist.*

ASSISTANTS.

JOHN C. BRIDWELL, B. S., *Assistant Entomologist.*
H. D. BATCHELOR, B. S., *Assistant Chemist.*
———————— *Farm Foreman.*
MABEL MEHAFFY, *Stenographer.*

FOUNDATION AND ENDOWMENT.

The New Hampshire College of Agriculture and the Mechanic Arts was incorporated by the state legislature in 1866, under the provisions of the act of Congress, approved July 2, 1862, entitled "An act donating public lands to the several states and territories which may provide colleges for the benefit of agriculture and the mechanic arts," the grant of land having been accepted by an act of legislature, approved July 9, 1863.

The act of 1862 provides that the income from the investment of the money realized from the sale of the lands shall be appropriated "to the endowment, support, and maintenance of at least one college where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, * * * in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life."

The "Morrill Bill," which was approved August 30, 1890, and received the assent of the state by an act of legislature, approved February 13, 1891, provides an appropriation for the more complete endowment and support of the colleges for the benefit of agriculture and the mechanic arts, established under the provisions of "the act of 1862."

The appropriation under the Morrill act is "to be applied only to instruction in agriculture, the mechanic arts, the English language, and the various branches of mathematical, physical, natural, and economic science, with special reference to their applications in the industries of life, and to the facilities for such instruction."

Under an act of Congress approved March 2, 1887, which received legislative assent August 4, 1887, was established

that department of the college known as the Agricultural Experiment Station, the purpose of which was "to aid in acquiring and diffusing among the people of the United States useful and practical information on subjects connected with agriculture, and to promote scientific investigation and experiment respecting the principles and applications of agricultural science"

Benjamin Thompson, who died January 30, 1890, was a resident of Durham, and a farmer by profession. He had at heart the agricultural interests of his native state, and in the furtherance of those interests he bequeathed to it at his death his whole estate with a few minor reservations.

Mr. Thompson's final statement of the object of his bequest was as follows: "My object being mainly to promote the improvement of agriculture, though willing that the college to be established should also provide for the mechanic arts, it is my will that the institution to be established by the state * * * shall be called and designated * * * The New Hampshire College of Agriculture and the Mechanic Arts, if that shall be the wish of the state; and that in addition to the instruction to be given therein, as provided by my said will, there shall be taught only such other arts or sciences as may be necessary to enable said state to fully avail itself of said donation of lands by the government in good faith, which two branches of instruction shall be the leading objects of said institution or college"

By the provisions of the will, the income from this source will not, however, become available until 1910. This endowment will amount at that time to nearly $800,000, the annual income from which will be about $32,000.

The state legislature accepted the Thompson bequest March 5, 1891, and on April tenth of the same year appropriated $100,000 for buildings. Approximately $50,000 was realized from the sale of property and from other sources. In 1893 an additional appropriation of $35,000 was made by the state for completing and furnishing the

buildings. Accordingly in 1893 the college was moved from its first home at Hanover to its present location at Durham.

The general government of the college is vested in a board of thirteen trustees. The governor of the state and the president of the college are trustees, *ex officio*; the alumni of the college elect one trustee; and all other trustees are appointed by the governor of the state, with the advice and consent of the council.

The college is executing the trust reposed in it by giving instruction in the various courses described in this catalogue under the prescribed heads of "agriculture" and "the mechanic arts."

The income for the current year is from the following sources: From the federal land grant of 1862, $4,800; from the federal government under the act of 1887, $15,000, to be applied only for use of the Agricultural Experiment Station; from the same source under the act of 1890, $25,000; and from the state, $10,500; and from various other sources, about $5,000.

GENERAL INFORMATION.

The New Hampshire College of Agriculture and the Mechanic Arts is a part of the public school system of the state. It stands, in its agricultural, mechanical engineering, electrical engineering, technical chemistry, and general scientific courses, in the same relation to the high schools that the high schools stand to the grammar schools, and that these in turn stand to the elementary schools. In other words, it is a continuation of the grades of the public school system of the state, with special reference to the industrial pursuits, and, in the courses that are provided as described elsewhere in this catalogue, it aims to give a practical training that shall fit the student to deal with the problems of life.

TUITION.

The tuition fee is $60 per year, although numerous scholarships give free tuition to many New Hampshire students.

SCHOLARSHIPS.

Conant Scholarships.—There are twenty-five Conant scholarships, each paying $40 and tuition, $60—total, $100. These are to be assigned under the following conditions:

1. They are to be given to young men taking an agricultural course.
2. Each town in Cheshire county is entitled to one scholarship, and Jaffrey is entitled to two.
3. Scholarships not taken by students from Cheshire county, and those in excess of the number of towns, will be assigned to agricultural students, and may be divided at the discretion of the president.

Senatorial Scholarships.—There are twenty-four senatorial scholarships,—one for each senatorial district. Each

scholarship is to pay tuition, $60. Senatorial scholarships not filled can be assigned to students from other localities at the discretion of the faculty; they are open to students in all courses.

Early application should be made for these scholarships. They will be reserved for those respective towns and districts until August 1 of each year, after which they may be otherwise assigned for the year.

These scholarships are given for the purpose of aiding deserving students, and will be withdrawn from those who use tobacco or intoxicating liquors, or show themselves not deserving. Janitorships, work on the farm, etc., also furnish assistance to a considerable extent.

Valentine Smith Scholarships.—Through the generosity of the late Mr. Hamilton Smith of Durham the sum of $10,000 has been given to the college to establish the Valentine Smith scholarships.

"The income thus accruing to the college shall be given to the graduate of an approved high school or academy who shall, upon examination, be judged to have the most thorough preparation for admission to the college; *provided,*

"That this income shall be paid to the student to whom it is awarded, in eight semi-annual payments, at the time appointed for the payment of term bills; and

"That if the student receiving this scholarship shall at any time prove unworthy, in the judgment of the faculty, by reason of defective scholarship or character, he shall forfeit his claim to the student most deserving; and

"That if the student receiving this scholarship shall cease to be a member of the college, the income from this fund, for the unexpired term, shall be awarded to the student most deserving in character and scholarship."

These scholarships yield $400 annually or one hundred dollars to each holder.

Competitive examinations for this scholarship will be held at the college at the time of the entrance examinations in September, and at no other time.

Grange Scholarships.—Each subordinate and Pomona grange in New Hampshire has the privilege of appointing one student annually to a free scholarship in any of the four-year or two-year courses in the college, each appointment to be good for four years if in a four years' course, and for two years if in a two years' course. Students holding these scholarships will be relieved from paying the annual tuition fee of sixty dollars, but will not be relieved from payment of incidental or other fees. Scholarships may be forfeited at any time by misconduct of the student or by his failure in a sufficient number of studies, or by his inability to meet the entrance requirements. Women may hold these scholarships on the same terms as men.

The method of appointment is entirely at the option of the grange; it may be by election, competitive examination, or otherwise.

PRIZES.

I. *The Smyth Prizes.*—Through the generosity of the late ex-Governor Frederick Smyth, the following prizes have been offered: three prizes, one of twenty, one of fifteen, and one of ten dollars, for excellence in oratory. To the members of the sophomore and freshman classes, two prizes for reading, one of fifteen and one of ten dollars. Since the death of ex-Governor Smyth the prizes have been continued by Mrs. Marion C. Smyth.

II. *Bailey Prize.*—Dr. C. H. Bailey, of Gardner, Mass., and E. A. Bailey, B. S., of Keene, N. H., offer a prize of ten dollars for proficiency in chemistry.

III. *Erskine Mason Memorial Prize.*—Mrs. Erskine Mason, of Stamford, Conn., has invested one hundred dollars as a memorial of her son, a member of the class of 1893, the income of which is to be given, for the present, to that member of the senior class who has made the greatest improvement during his course.

ESTIMATE OF EXPENSES.

Tuition	Free	$60.00
Text-books	$10.00 to	30.00
Military uniform for new students	16.00 to	16.00
Drawing instruments and materials	7.50 to	30.00
Fees*	20.00 to	20.00
Room rent, including fuel	30.00 to	50.00
Board, $3 to $3.50 per week, for thirty-five weeks	105.00 to	122.50
Total	$188.50	$328.50

Room rent is estimated on the supposition that two students occupy the same room or suite of rooms.

Rooms may be obtained either furnished or unfurnished. Most of the rooms are in suites, and are in buildings provided with heating apparatus and bath-rooms.

The college has no rooms for students.

For further information, address New Hampshire College, Durham, New Hampshire.

COURSES FOR WOMEN.

Women attending the college may elect any course laid down in the curriculum, subject to the conditions prescribed for all students. They may omit manual labor on the farm and in the shop, and substitute other studies.

The general course, with its electives, is specially prepared for women, and is so planned that special courses may be arranged in literature, languages, history, philosophy, pedagogy, drawing, biology, and manual training.

The courses in agriculture and chemistry afford opportunities for the study of the natural sciences, and the engineering courses offer exceptional advantages in mathematics and physics.

*Includes all charges commonly considered extras, except those for breakage and damage to college property.

POST-GRADUATE STUDY.

The college offers opportunities for post-graduate study in agriculture, biology, and chemistry.

After the satisfactory completion of an appropriate amount of post-graduate work, advanced degrees will be given.

SPECIAL STUDENTS.

Special students shall be admitted only by vote of the faculty. Any person of mature years (not a candidate for a degree) may be so admitted upon presenting satisfactory evidence of his ability to complete the desired course of study.

REGISTRATION.

All undergraduate students who desire to attend the college during a given term are required to register at the president's office on or before 4 p. m. of the first day of such term. Every former student registered after the first day of any term shall be charged for such registration a fine of one dollar for the first day and fifty cents additional for each succeeding day, to be remitted only by the president upon presentation of a substantial excuse for the delay.

Students shall be admitted to classes only upon presentation of their registration card.

ATTENDANCE.

All students are required to attend chapel; all male students are required to attend military drill.

TERM BILLS.

Tuition and fees are payable in advance, in two equal instalments: one on the first day of the fall term and the other on the first day of the winter term, of each year. No student shall receive his registration card or attend classes until his bills are paid.

ELECTION OF STUDIES.

Every student shall, on or before the Saturday before the last in each term, notify in writing the secretary of the faculty of his elections for the term following. Any student, who, having made his elections, desires to change, shall make application to the faculty in writing, with a statement in full of his reasons.

Any student who fails to fill out his elective slip on or before the date mentioned, shall pay a fine of one dollar before he can be registered for the studies of the next term, unless he has previously obtained from the secretary of the faculty a written excuse for delay.

AMOUNT OF WORK.

No student shall be permitted to carry less than sixteen nor more than twenty-one credit hours per week of class-room work or its equivalent, exclusive of military tactics, without the consent of the faculty.

LOSS OF STANDING.

No student shall be registered in any class until he has completed three fourths of the work of the preceding year, and all the work required up to the beginning of that year.

EXAMINATION ON ENTRANCE DEFICIENCIES.

Students conditioned on entrance examinations may have an opportunity to make up such deficiencies upon the two days preceding the beginning of the fall term, and upon the last Saturday of each term. A student who takes a deficiency examination upon an entrance subject, at any other time, must pay the college one dollar for each examination upon each subject.

Students who have any entrance condition outstanding at the beginning of the third year of residence at the college, or more than one at the beginning of the second year, will not be allowed to register until such conditions have been removed.

THESIS.

A thesis upon some subject connected with the work of the course taken is required of every candidate for a degree. The subject, together with a written approval of it by the head of the department within which it lies must be submitted to the president before the fifteenth day of December preceding graduation. The completed thesis shall be submitted to the head of the department concerned not later than the second Tuesday preceding Commencement. The thesis shall be typewritten or printed upon standard thesis paper, 8½ by 11 inches, medium weight, neatly bound in black cloth, and gilt lettered on first cover with title, name of author, degree sought, and year of graduation. This bound copy shall be approved by the faculty, filed, and left with the college librarian.

GRADUATION.

Those who complete a four years' course or its equivalent will be recommended for the degree of Bachelor of Science. No equivalent for one of the four years' courses will be accepted which does not contain an average of at least eighteen credit hours per term, in addition to military drill, for four years, and all of the required subjects of the first two years which are common to all of the four-year courses.

The regular work of the senior class, including the regular final examinations, is completed at 4 p. m. on the Tuesday of the week preceding Commencement; and each member of the class may receive a statement of his standing at the office of the secretary of the faculty at 3 p. m. on the next day, Wednesday.

SUNDAY SERVICES.

Although the only church in Durham is nominally Congregational, it is attended by citizens of all denominations, and sectarian lines are never drawn. It is conveniently situated, and with its regular services, its Sunday-school,

prayer-meetings, and young people's meetings, it offers ample opportunity for religious observance.

SITUATION AND RAILROAD CONNECTIONS.

Durham is situated on the Western division of the Boston and Maine Railroad, sixty-two miles from Boston, and about midway between Rockingham Junction and the city of Dover, being five miles from the latter place.

BUILDINGS.

THOMPSON HALL.

Thompson Hall, the main college building, has a length of 128 feet, exclusive of a *porte-cochere* 40 feet long, and a width of 93 feet in the widest part. It is built of granite and brick, and has three stories besides the basement.

The basement contains an armory, a locker room for athletic purposes, a shower-bath, a blower-room, with apparatus for controlling the heating and ventilation of the building, geological laboratory, a lavatory, and rooms used for storage.

One half of the first floor is devoted to the library, which is provided with a large, well-lighted reading room for papers and magazines, a reference room for special work, a librarian's room, a delivery room, and shelf space for fifty thousand volumes. The remainder of the first floor is used for offices, recitation rooms for mathematics and history, and a waiting-room for women.

On the second floor are more offices, the botanical and zoölogical laboratories, the drawing-room, and recitation rooms for biology, mechanical engineering, philosophy, and modern languages.

On the third floor is the large hall used as an auditorium, two literary society rooms, and the bell-boy's room.

The building is lighted by gas and electricity, and provided with the most approved system of heating and ventilation.

MORRILL HALL.

This building was erected in 1902 at a cost of about $30,000. It is 110 feet long and 58 feet wide, comprising four stories, including the basement. It is plain and simple in outline, and gives the impression of strength and solidity.

The material is brick, laid in Flemish bond, with trimmings of the clear, almost white Suncook granite. These relieve and brighten to a certain extent the general effect of plainness and simplicity. The roof is of slate, and the construction throughout is designed to give the greatest possible security against fire. All the partition walls are of brick, and the steam for heating is taken from the boilers at the central station, near the Mechanical Building. The Johnson system of automatic temperature regulation has been installed. Adequate ventilation is secured throughout the building by means of a large fan in the basement. All the floors are of maple, except the basement, which is of cement. Only the ceilings of the rooms are plastered, the side walls being of bare brick, calcimined Indian red.

A vestibule, eight feet wide, runs through the centre of the building the long way on each floor, except the fourth.

In the south end of the basement there is a room 56 by 32 feet, which is used for the exhibition of the different makes of agricultural implements and tools. The north end of the basement is fitted up for a live stock judging room. On the basement floor there is also a lavatory, provided with wash-stands and shower-bath, a bulletin mailing room, a soil-storage room, a fan and heating room, and a janitor's room.

The first floor is occupied by the department of agriculture. It contains two class-rooms—one for agronomy, and one for animal industry—a soil physics laboratory with a preparation room attached, an agricultural reading-room, a stenographer's room, the farm superintendent's room, and the offices of the professor and assistant professor of agriculture.

The second floor is occupied by the horticultural department. It contains one class-room, a pomological laboratory, a forestry laboratory, a herbarium room, a horticultural reading-room, and the offices of the professor and assistant in horticulture. The second floor is also provided with a refrigerator room, in which the fruits and vegetables used

for laboratory work may be preserved. Both the first and second floors are provided with fireproof vaults in which important records and expensive equipment are kept.

CONANT HALL.

(Chemical and Physical Laboratories.)

Conant Hall contains the laboratories and lecture-rooms for instruction in chemistry, physics, and electrical engineering. It is a substantial brick building, 92 by 70 feet, and three stories high, including the basement. It is heated by steam brought from the shops, lighted by gas and electricity, and provided with a system of thorough ventilation. Water, gas, high pressure steam, hydrogen, oxygen, vacuum, and blast are supplied through pipes wherever needed, and the lecture rooms in addition have switches controlling both dynamo and battery currents, and arrangements for stereopticon illustration.

The basement contains a small workshop, the battery, photometer, photographic, and comparator rooms, a clock room protected by double walls against changes in temperature, an acid room, and a water and gas laboratory provided with the necessary fixtures and appliances.

The first floor, with the exception of one room, is occupied by the physics department. It contains the mineralogical laboratory, which is provided with tile-covered desks and other facilities for blowpipe analysis; the junior physical laboratory; an apparatus room; a reading and reference room for physical and electrical books and periodicals; an electrical laboratory, from the neighborhood of which masses of iron have been excluded, so that magnetic measurements can be made with a good degree of accuracy; and the physical lecture-room, which is provided with all necessary conveniences, as before mentioned. For optical experiments, the room can be darkened by means of special window-shutters, operated from one of the lecture-desks. A stone pier between the two desks makes it possible to use delicate instruments.

The second floor is given up entirely to the chemical department. It contains storerooms, an organic laboratory, a qualitative laboratory, a private laboratory, a dark room for polariscopic and spectroscopic work, a lecture-room provided with facilities as before described, a quantitative laboratory, and a room for the delicate chemical balances and most important reference works.

The laboratories are fitted up with the most modern accessories, and with special reference to the kind of work to be performed in each.

SHOPS.

These have been built in order to provide facilities for instruction in the working of wood and metals. The buildings are constructed on the "slow-burning" principle, with thick walls, and heavy, continuous plank floors. The rooms are all well lighted and well ventilated.

The main building is 42 by 106 feet, and two stories high, with a basement 31 by 42 feet. The basement is used as an engine room and laboratory. The largest room on the first floor is the machine shop, where there is opportunity for practice in the operation of working metals by cutting tools, both by hand work and by machinery. On this floor a lavatory is provided. The second floor is mainly occupied by a wood-shop, in which the common branches of carpentry, joinery, and pattern making are taught. Practice is given in the use of carpenters' tools, and in the care and operation of the machines of most general use in wood-working.

Joined to the main shop building and on a level with its basement is a one-story building, 40 by 100 feet, containing the boiler room, repair shop, forge shop, and foundry.

There are four boilers, aggregating two hundred and forty horse-power, which furnish steam to all the college buildings, wherever needed for heating or power. A brick chimney, ninety-five feet high, carries away the waste gases from the furnaces.

In the forge shop instruction is given in forging, welding,

tempering, and riveting, and in the foundry the student is taught to mold and cast from the various patterns made in the wood-shop.

NESMITH HALL.

Nesmith Hall, a brick building two stories in height, is used for the work of the Agricultural Experiment Station. It contains offices and working rooms, a reference library, and chemical, entomological, bacteriological, and botanical laboratories.

DAIRY.

The dairy building is a wooden structure of one and one half stories, with basement. It contains six rooms equipped for manual training in milk testing, milk and cream pasteurizing, cream ripening, butter-making, and the care and management of dairy machinery.

The first floor is used for receiving milk and for the separators. On this floor is also the office of the instructor and the laboratory for milk testing. The basement contains the ripening vats, churns, and refrigerators, together with the engine.

BARNS.

The cattle barn is a wooden structure, the main portion of which is 50 by 100 feet, two stories in height, with a large basement. It has a one-story L, 40 by 100 feet, with a basement under two thirds of it. This barn is a model structure, erected at an expense of about ten thousand dollars. It has accommodations for about sixty head of cattle, which are provided with sanitary stalls. There are the necessary divisions for storage of hay, grain, and seeds, and rooms for milk scales, ensilage cutter, and repair shop. In addition there is a cold-storage room and a feed room. There are two silos, each having a capacity of about one hundred and twenty-five tons.

A second barn is used by the agricultural department for storing hay and implements, and stabling the department horses.

A third barn, about 30 by 60 feet, is used at present for keeping the horses and implements employed by the horticultural department.

GREENHOUSES.

The new range of greenhouses has been specially planned and built for carrying on modern and up-to-date work in greenhouse management and handicraft. There are seven distinct houses besides a propagating hallway. Connected with the glass structure is a workroom 20 by 30 feet, which also answers as an office for the florist, and is equipped with scales, seed-boxes, and other accessories. The basement of the workroom, or potting house, is used for a boiler room and storeroom for potting soils. The attic has two good rooms, one of which is occupied by the greenhouse attendant. The whole system is heated by steam, the boiler being a Lord & Burnham Co. sectional. The houses are piped so that the temperature can be regulated for any kind of crop, and offer exceptional opportunities for experimental work. The main palm house and four of the lateral houses were built by the Lord & Burnham Co., greenhouse contractors, and are of steel superstructure. The other two, together with the passageways to the potting house, are constructed of cypress, with angle iron eaves plates and iron supports. One house is equipped for greenhouse management instruction, and each student is given definite laboratory space and prescribed work. Two of the houses have ground beds, and are adapted for forcing vegetables, while the remaining houses have raised beds, excepting the centre of the palm house, which is a ground bed.

These houses are lighted with electricity and offer unusual facilities for instruction and experimentation. When students have completed the required greenhouse courses, they are prepared to take positions as florists or gardeners of estates, etc.

LABORATORIES AND EQUIPMENT.

AGRONOMY.

This department is provided with a collection of dried specimens of the different forage crops; the more important varieties of corn, wheat, and oats; and with a large number of lantern slides, grass charts, and other illustrative material. The soil physics laboratory is equipped with soil bins, a compacting machine, chemical and torsion balances, and various kinds of physical apparatus for the study of soils, including that for the determination of specific gravity and for the making of mechanical analyses.

The agricultural museum contains many of the latest models of the different makes of farm machinery, tools, and appliances, including plows, cultivators, harrows, mowers, rakes, corn binders, manure spreaders, different kinds of cattle ties, and various makes of patent wire fences.

The college farm, with its three hundred acres of land, has a variety of soils and soil conditions suited to the growth of nearly all the important farm crops, and thus offers excellent opportunities for practical work and demonstration in the department of agronomy.

ANIMAL INDUSTRY.

For the various courses in animal industry an extended use is made of the live stock of the college farm. The dairy herd consists of representative animals of the following breeds: Ayrshires, Guernseys, Jerseys, and Shorthorns. The college owns six head of horses representing the draft type, and to become acquainted with the trotting and thoroughbred types the students are taken to various stock farms where these types can be inspected and judged.

For the study of the different breeds of sheep and swine the college flock of thoroughbred Southdowns and herds of medium Yorkshires and Berkshires are used. Representatives of other breeds are rented for practical study and judging.

In the new agricultural building a large room has been

fitted up for the judging of live stock, instruments for precise measurements are provided, and score cards with a scale of points for each kind of animal are used.

The class-room is provided with a stereopticon lantern, and a large collection of lantern slides is used to show the leading individuals of several breeds of live stock. The herd books of the several breeds are made use of in familiarizing the student with methods of tracing pedigrees and the practices of breeders' associations.

HORTICULTURE.

The facilities for instruction in the various lines of horticulture have vastly improved during the past year. The completion of Morrill Hall gives this department the entire second floor, containing offices, lecture-room, laboratories, herbarium room, seminary and library room, and a cold-storage room. On the basement floor this department has also in conjunction with the agricultural department a photograph room, soil, and carpenter's room, and an implement room. The lecture room is fitted up with a stereopticon lantern. The pomological and vegetable gardening laboratories are of original design, and offer every facility for modern work. During the fall term over one hundred varieties of apples are studied by the students. Persimmons and tropical fruits are received from Florida, grapes and pears from western New York, and other fruits, apples in particular, from Pennsylvania, West Virginia, New York, Ohio, Minnesota, Oregon, various parts of New England, and Canada. Large numbers of varieties of vegetables are grown in the experiment station trial grounds, and these offer exceptional opportunities for identification and study in the laboratory for some time after field conditions have gone by. The orchards, gardens, and grounds also offer opportunities for demonstrating the theories advocated in the lecture-room. Many varieties of different kinds of fruits are to be found in the orchards. These are young, but coming into bearing. The plum orchard has sixty varieties in bearing. Grapes, peaches, apples, cher-

ries, and small fruits are also grown at the Experiment Station. Propagation of fruits, shrubs, and flowering plants is practised. A fine collection of Vilmorin charts is owned by the department. The collection of lantern slides is continually being enlarged.

COLLEGE FOREST.

A beautiful tract of sixty acres of old forest growth is owned by the college. It is located close at hand, and offers exceptional opportunities for studying forestry. The country about Durham presents forestry conditions typical of New England, and the transplanting of trees, sowing of seeds, and general questions of forestry management may here be studied in Nature's laboratory.

DAIRY.

Through the courtesy of leading manufacturers of dairy and creamery appliances, all available space is filled with various forms of cream separators, milk coolers, churns, and other dairy appliances. The most approved appliances for milk testing form a part of the regular equipment. Steam is supplied by the large boilers at the power-house. In addition to the product of the college herd, milk is received from about twenty-five farms in Durham and vicinity. Through this arrangement the college is able to furnish plenty of milk for practice work, and to provide for a most thorough and practical training in dairy and creamery management.

MECHANICAL ENGINEERING.

The basement and westerly rooms of the main shop building are used as engine room and mechanical laboratories, and contain the forty horse-power engine which furnishes power for the shops and electric lighting of the college buildings; a shaft-governor, slide-valve engine; a direct acting steam pump; and the large compound duplex pump which receives water under a head of fifteen feet through an eight-inch pipe from a reservoir one half-mile distant, and forces it through underground mains to the various

hydrants and buildings, or through nozzles for measurements during tests. This pump, with its long supply pipe, a ten-inch standpipe, and a 6,000-gallon standpipe, furnish an apparatus for an extensive series of hydraulic experiments. It is fitted with indicator motions and other necessary equipment for complete duty tests.

Among other apparatus is a 50,000-pound Olsen machine with the necessary tools and measuring instruments for tension, compression, and transverse tests; a 2,000-pound wire machine; an indicator tester; a marine gas engine; a Westinghouse air-brake pump; steam and gas engine indicators; a surface condenser with a capacity of 2,000 pounds of steam per hour, fitted with a 5½ by 8 by 7 air pump; and the usual supply of scales, gauges, thermometers, and small apparatus. The three sectional boilers, and the one hundred horse-power horizontal return tubular boiler, with the 95-foot brick stack are used for boiler tests and flue gas analysis by means of an Orsat gas apparatus, a pyrometer, and thermometers reading to 1,000 F. The ventilating fans and engines of the various buildings, as well as the new engines at the creamery and in the electrical laboratory, are available for testing. Opportunity is given for the student not only to test the machine or engine, but to become familiar with its construction and operation.

In addition to the instruction given in the laboratory, excursions are made to various outside power plants, and, when practicable, tests are made, thus enabling the student to become familiar with various types of engineering practice.

WOOD-SHOP.

This occupies the larger part of the second story of the main building. It is supplied with benches and the necessary tools to accommodate twenty students at one time. Other equipment consists of a circular saw, board-planer, buzz-planer, jig-saw, speed-lathes, a large pattern maker's lathe with molding and boring attachments. A stock and pattern room on the same floor provides storage for lumber,

patterns, and unfinished work. The course in woodwork consists of practice in carpentry, joinery, cabinet-making, and turning. Much of the advanced work consists of making apparatus and cabinets for use about the college. Following this work is the course in pattern-making, special attention being given to methods of design.

MACHINE SHOP.

The equipment is as follows: seven engine lathes, a 14-inch by 6-foot speed-lathe, built by students; a vertical drill, built by students; a 30-inch Flather planer; a universal milling machine with gear-cutting and spiral attachments; shaper; power hack saw; twelve benches with vises; and a large number of small tools, including micrometer, calipers, and gauges necessary for accurate work. The lathes in the wood-shop were built here, and several more are in process of construction.

FORGE SHOP.

This contains thirteen Sturtevant down-draft forges with anvils and necessary tools. The blast to the forges is furnished by a No. 4 blower, and the smoke carried away by a 60-inch exhauster. These are driven by a 3 by 5 vertical engine. The student is taught the principles of forging, welding, and tempering of iron and steel. Special attention is given to accuracy of dimensions as well as of shape and finish.

FOUNDRY.

The foundry is supplied with a furnace, molding benches, flasks, and bench tools. Foundry work is taken in connection with the course in pattern making, and the student molds and casts from the patterns he has constructed in the wood-shop. Castings are made in iron, brass, and alloy, and tests are made on "test bars" of each.

PHYSICS AND ELECTRICITY.

The physical laboratory is equipped with a good collection of the usual apparatus for laboratory work and lecture-

room illustration, to which will be continually added pieces purchased or made in the college shop.

In the junior laboratory of physics there has been added apparatus for studying absorption phenomena and the comparison of spectra of films, liquids, metals, etc.; for measuring the angles of crystals and indices of refraction; for verifying the laws of refraction and total reflection of light; for determining the moment of inertia of various forms of specimens.

In electricity and magnetism, the equipment includes instruments of high precision and of the latest forms, such as: a magnetometer for studying the intensity of the earth's magnetism; a universal tangent galvanometer capable of assuming a variety of forms and measuring currents from a small fraction of an ampere to one hundred amperes; a high grade, four-spool Thomson reflecting galvanometer; a Ryan electrometer for tracing pressure and current waves; a standard ballistic galvanometer; an Ayrton & Perry's variable standard of self-induction, as well as others of less accuracy for elementary work; a complete photometer equipment for comparing incandescent and arc lamps, and the distribution of light from the latter for both open and inclosed arcs; a small, low-potential testing unit, consisting of a universal alternator belted to a direct current motor, and capable of adjustment to be driven from either the direct or alternating side; a low-potential transformer, either side arranged to be connected to the universal alternator or to the secondary of the transformer on the lighting system; a bank of lamps for illustrating the various methods of distributing from mains for lighting systems, or affording loads in obtaining characteristics, efficiencies, etc.; and standard forms of voltmeters and ammeters.

For more strictly electrical engineering work, the department has the five-hundred-light alternator used in lighting the college buildings, a direct current "exciter" dynamo, all the apparatus of a complete fifty-five-light Edison iso-

lated electric lighting plant, arc, and incandescent lamps, and standard forms of voltmeter, ammeter, and transformer.

In the dynamo laboratory, a Westinghouse junior engine has been installed. It is capable of developing about twenty-three-brake horse-power under one hundred pounds steam pressure. This engine, being on a practically independent line of steam pipe, is expected to maintain good speed regulation of the main line shaft to which it is belted, and from which power is delivered to countershafts, and thence to the various dynamos and workshops of the department. A set of wood and metal working tools, and a 14-inch, 8-foot bed Flather engine lathe, with complete attachments, have been purchased for this shop.

CHEMISTRY.

The several chemical laboratories are modern in design, commodious, and well equipped. Each is supplied with the latest forms of apparatus required for its particular work. Besides all necessary glass and porcelain ware, this includes water baths, drying ovens, combustion, muffle and assay furnaces, platinum dishes and crucibles, polariscope, spectroscope, balances, lantern, and other lecture appliances, etc.

ZOOLOGY.

The zoölogical laboratory is well supplied with aquaria, microscopes, dissecting tools, charts, reference books, and collections. The latter include a representative display of the birds of New Hampshire, and a very large collection of the insects of the state arranged in glass-covered boxes. New tables have recently been added to the equipment of this laboratory.

BOTANY.

The botanical laboratory is supplied with a good herbarium, microscopes, and the other necessary appliances.

SURVEYING.

The surveying instruments are sufficient in number and of the most approved pattern.

DRAWING.

At present rooms in Thompson Hall are devoted to the use of the drawing department. For free-hand model-drawing and for mathematical drawing there is a good supply of geometric models; and for free-hand industrial drawing the nucleus of a good collection exists, consisting of plaster casts of historic ornament, details of human form and antique sculpture, as well as vases and common objects. The models for machine drawing are few, but various machines in other departments are available for this work.

There is the beginning of a good working library.

MUSEUM.

The museum had for a nucleus the collections made during the state geological survey. To this additions have been made from various sources. Many specimens are being collected to illustrate zoölogy, especially entomology.

LIBRARY.

The library of the college consists of ten thousand bound volumes and six thousand pamphlets. A large part of these are new and expensive books, making good working libraries for the different departments of instruction, including economic science and English and American literature.

Students also have the free use of the Durham public library of about eight thousand well selected volumes.

The college supports a reading-room, which is well supplied with the leading American and foreign periodicals.

FOUR YEARS' COURSES.

AGRICULTURAL COURSE.

This course is arranged especially for the general education and scientific training of students to fit them in various economic branches, such as agronomy, animal husbandry, biology, agricultural chemistry, entomology, forestry, horticulture, veterinary science, etc. Graduates are supposed to be qualified to take positions such as farm superintendents, foremen, stock raisers, dairy farmers, creamery managers, dairymen, superintendents of estates, parks or cemeteries, fruit-growers, gardeners, florists, nurserymen, landscape gardeners, foresters, poultrymen, ranchmen, etc.

It is expected that these same men will be equally prepared, depending upon individual tastes, to take positions as teachers and assistants in colleges and experiment stations.

The aim is to give a broad general foundation of pure and applied science. Laboratory methods are used in connection with lecture and recitation work. Seminary courses are also given, especially for seniors and advanced students.

BIOLOGICAL DIVISION OF THE AGRICULTURAL COURSE.

The biological division of the agricultural course is for the benefit of those students who desire to make a special study of some phase of natural history. It leads to such positions as teachers of botany and zoölogy in high schools and colleges, entomologists for experiment stations, state inspectors of nursery grounds, etc. During the first two years the student pursues the regular studies of the agricultural course, but in his junior year he begins to specialize in botany and zoölogy, a considerable proportion of his

time during the rest of his course being given to these subjects.

CHEMICAL DIVISION OF THE AGRICULTURAL COURSE.

The work of this division is especially intended to give a thorough grounding in the principles of chemistry as applied to agriculture and agricultural chemical analyses, and to train the student thoroughly in all kinds of manipulation required of the chemist in experiment stations, large dairy establishments, fertilizer works, etc.

Instruction is given mainly by personal supervision in the laboratory, accompanied by lectures, themes, recitations; and, as in the course in technical chemistry, the studies are arranged to meet the needs of the individual. Students wishing to take this course will elect, with the advice of the instructors in charge, seven hours per week of chemical work during the junior year, and eight hours per week during the senior year. Two years of German will be required, and French is recommended to be taken by students intending to enter the division.

COURSE IN MECHANICAL ENGINEERING.

Mechanical engineering is concerned with the design, construction, care, and operation of machinery.

The special studies are: mathematical, including a large amount of drawing; technical, pertaining directly to the professional work of the engineer; and general.

The study of the scientific principles underlying the work of the engineer is accompanied throughout the course by actual practice in mechanical operations and scientific research, by training in the use of tools for working wood and metals, and by experimental tests and demonstrations in the mechanical, chemical, and physical laboratories.

ELECTRICAL ENGINEERING COURSE.

The electrical engineering course is intended to meet the demands of a young man fitting himself for practical and

professional engineering, in connection with the various applications of electricity.

By means of lectures, recitations, and laboratory work, the subjects of the course are brought to the attention of the student in such a manner as to emphasize not only the present needs of the practician and engineer, but to give him the groundwork that will enable him to grasp and understand the constantly increasing number of problems that require solution.

The instruction aims to impart a complete practical and theoretical knowledge of the best modern types of electrical machines and appliances, and the methods of designing, building, and operating them.

The rapid progress in recent years in applying electricity to commercial uses, renders it difficult, if not impossible, for one without a technical education to gain prominence and be intrusted with its more responsible positions.

COURSE IN TECHNICAL CHEMISTRY.

This course is intended to fit for the career of a professional chemist or chemical engineer, and to give a good foundation for original and independent chemical research.

Instruction is imparted by lectures, recitations, and a large amount of carefully supervised laboratory work. The laboratory course is largely an individual one, and the work of each student is conducted with reference not only to the particular object he may have in view, but also to the acquirement of a broad knowledge of chemical science. The student is given a thorough training in German and French, to enable him to read with ease the chemical literature; a thorough grounding in mathematics, necessary for advanced theoretical chemistry or chemical engineering; a somewhat limited amount of special engineering work, both mechanical and electrical; and a thorough undergraduate training in theoretical and applied chemistry. He is encouraged to develop the power of solving chemical problems by independent thought through the aid of the refer-

ence works and chemical periodicals which the library contains. The large and well-furnished laboratories afford unusual facilities for chemical work.

GENERAL COURSE.

The general course in its original form was established in response to the demand that special provisions should be made for women. It has been broadened and improved by additional studies, and by an extensive scheme of elections, until in its present form it offers to either men or women "a liberal education upon a scientific basis."

MILITARY DEPARTMENT.

The United States government has furnished arms and equipment for two hundred men. The facilities for outdoor drill are unexcelled. Abundant ammunition is supplied by the federal government for target practice at the college rifle range. The battalion wears a neat cadet gray uniform, and is under the command of an officer of the regular army, detailed by the secretary of war.

The aim of the military department is to qualify graduates that they may have full practical knowledge not only of drilling but of supplying and handling a company in actual service.

REQUIREMENTS FOR ADMISSION TO FOUR YEARS' COURSES.

All candidates for admission to college must present satisfactory testimonials of good moral character.

Candidates for admission to the Freshman class must offer studies amounting to a total of fourteen units.

AGRICULTURAL COURSE.

Candidates for admission who intend to take the Agricultural Course must offer ten units from required subjects and four units from optional subjects, according to the following statement:

Required Group A		3 units
" " B		1 unit
" " C		2 units
" " D	(Physics and Botany)	2 "
" " E		2 "
		10 units
	(Optional)	4 "

GENERAL COURSE.

Candidates for admission who intend to take the General Course must offer ten units from required subjects and four units from optional subjects, according to the following statement:

Required Group A		3 units
" " B		2 "
" " C		2 "
" " D	(Physics)	1 unit
" " E		2 units
		10 units
	(Optional)	4 "
Total		14 units

ENGINEERING COURSES AND COURSE IN TECHNICAL CHEMISTRY.

Required	Group	A	3 units
"	"	B	1 unit
"	"	C	3 units
"	"	D (Physics)	1 unit
"	"	E	2 units
			10 units
		(Optional)	4 units
Total			14 units

GROUP A.

English.—The New England College Entrance Requirements in reading and study,—three periods a week for four years.

Reading and Practice. Each candidate will be required to present evidence of a general knowledge of the substance of the books mentioned below and to answer simple questions on the lives of their authors. The examination will usually be the writing of one or two paragraphs on each of several topics. The treatment of these topics is designed to test the power of clear and accurate expression, and will call for only a general knowledge of the substance of the books. In place of this test the candidate may present an exercise book, certified by his instructor, containing compositions or other written work done in connection with the reading of the books.

In 1906, 1907, and 1908 it will be based upon: Shakespeare's Macbeth and The Merchant of Venice; The Sir Roger de Coverley Papers in The Spectator; Irving's Life of Goldsmith; Coleridge's The Ancient Mariner; Scott's Ivanhoe and The Lady of the Lake; Tennyson's Gareth and Lynette, Lancelot and Elaine, and The Passing of Arthur; Lowell's The Vision of Sir Launfal; George Eliot's Silas Marner.

Study and Practice. This part of the examination presupposes a careful study of the works named below. The examination will be upon subject-matter, form, and struc-

ture; and will also test the candidate's ability to express his knowledge with clearness and accuracy.

In 1906, 1907, and 1908 it will be based upon: Shakespeare's Julius Cæsar; Milton's L'Allegro, Il Penseroso, Comus, and Lycidas; Burke's Speech on Conciliation with America; Macaulay's Essay on Milton and Life of Johnson.

—3 units.

* GROUP B.

History of the United States.—Channing's Students' History of the United States, or an equivalent, with four hundred pages additional reading. Constitution of the United States. This is to represent not less than three exercises per week during one year of the high school course.

—1 unit.

A combination of Ancient History and English History. The amount of Ancient History required is represented by Wolfsen's Essentials. The amount of English History required is represented by either Larned's or Montgomery's History of England.

—1 unit.

History of Greece.—Myers' larger work, or an equivalent.

History of Rome to 1814.—An adequate preparation would be represented by Myers' Rome, its Rise and Fall, and Chapters I to VI, of Myers' Middle Ages; or by Allen's Roman People, and Emerton's Introduction to the Middle Ages.

—1 unit.

GROUP C.

Algebra through quadratic equations, including radicals, and fractional and negative exponents, and Plane Geometry.

—2 units.

SOLID GEOMETRY.

The equivalent of Wells' presentation.

—1 unit.

*A candidate may present either the first and third or the first and second units of this group.

PLANE TRIGONOMETRY.

The equivalent of Wentworth's presentation.

—1 unit.

GROUP D.

PHYSICS.

The preparation required for entrance in Physics shall be an equivalent of seventy-five class exercises, one hour each in length.

When certificates are offered, they should state the number of exercises and time allotted to each exercise.

—1 unit.

BOTANY.

Gray's Lessons in Botany with a herbarium of fifty plants or Coulter's Plant Relations with laboratory work or an approved equivalent.

—1 unit.

ZOOLOGY.

Davenport's Introduction or an approved equivalent.

—½ unit.

PHYSICAL GEOGRAPHY.

Davis' Elementary or an approved equivalent.

—½ unit.

GEOLOGY.

Leconte's Compend or an approved equivalent.

—½ unit.

CHEMISTRY.

Elementary Inorganic Chemistry equivalent to the work covered in Remsen's Briefer Course, Storer & Lindsay's Manual, Witham's Elements or Newell's Descriptive Chemistry, accompanied in each instance with laboratory practice.

—½ unit.

GROUP E.

It is expected that the student will give two years to the preparation of the language offered. The requirements are as follows:

In German the student will be held responsible for the conjugations of strong and weak verbs, the declensions of articles, nouns, adjectives, and pronouns, the elements of syntax, the uses of the modal auxiliaries, and the translation from English into German of simple connected passages based on one of the books read. More attention, however, is paid to the translation from German into idiomatic English. The student should read at least 200 pages of German prose. The following books are recommended:

1. Huss, German Reader (D. C. Heath & Co.); Andersen, Märchen; Brandt, German Reader; Lange's Beginners' German Book (Allyn & Bacon); Kaiser and Monteser's Brief German Course.

2. Hillern, Höher als die Kirche; Riehl, Der Fluch der Schönheit; Storm, Immensee; Gerstäcker, Irrfahrten; Heine, Die Harzreise; Freytag, Aus dem Staat Friedrichs des Grossen.

— 2 units.

In French the applicant is expected to be familiar with the whole subject of French grammar, and to be able to translate from English into French simple connected passages based on one of the books read. More attention, however, is paid to the translation from French into idiomatic English. The student should read at least four hundred pages. The following books are recommended:

1. Laboulaye, Contes Bleus (Heath); Colin, Contes et Sayñetes (Ginn & Co.); Super, French Reader; Rollins, French Reader (Allyn & Bacon); Aldrich & Foster's French Reader (Ginn & Co.); Bruno's Le Tour de la France (American Book Co.).

2. Halévy, L'Abbé Constantin; Mérimée, Colomba; Erckmann-Chatrian, Le Conscrit de 1813; Dumas, LaTulipe Noire; Daudet, La Belle Nivernaise; Berthet, Le Pacte de Famine; Sand, La Mare au Diable.

— 2 units.

GROUP F.

Students entering from approved schools may receive credit in their certificates for the following work in Latin or Greek.

LATIN.

Grammar and four books of Cæsar. Two years' work.
— 2 units.

Vergil, six books.
Cicero, six orations.
— 2 units.

GREEK.

Books I and II of Xenophon's Anabasis, Books III and IV of the Anabasis or their equivalent in other Attic prose, and 1,500 lines of Homer.
— 2 units.

A certificate from an approved academy or a high school will be accepted in place of an examination, upon any subject required for admission. Every certificate must state the amount of work done by the student, his proficiency, and the text-books used; and in case it is not evident that the student is thoroughly prepared, an examination will be required.

Certificate forms will be furnished upon application.

Candidates for advanced standing are also examined in the studies that have been pursued by the class which they propose to enter.

Examinations will be given, in the subjects presented for admission, on the Tuesday and Wednesday preceding the beginning of the college year. Candidates will present themselves with their credentials on the first day of the examination. See Calendar.

REQUIREMENTS FOR GRADUATION FROM FOUR YEARS' COURSES.

The degree of Bachelor of Science will be conferred upon those who complete a four years' course or its equivalent.

The regular work of the Senior class, including the regular final examinations, is completed at 4 p. m. on the Tuesday of the week preceding Commencement; and each member of the class may receive a statement of his standing at the office of the secretary of the faculty at 2 p. m. on the next day, Wednesday. All work required for graduation must be completed by 6 p. m. of the Saturday of the same week.

Each candidate for a degree must prepare a thesis on some subject relating to the studies he has taken.

DESCRIPTION OF STUDIES.

AGRICULTURE.

The rapid development of the science of agriculture has made it necessary to divide the subject into several distinct branches or subdivisions, and to give to each of these branches a definite name. Accordingly the various agricultural studies will be found grouped under the following heads: Agronomy, or technical agriculture; Zoötechny, or animal industry; Agrotechny, or dairying; Rural Engineering and Farm Economy.

AGRONOMY.

Agriculture 1. Principles of Agriculture.

Lectures and recitations upon the elementary principles of agriculture, including a study of the soil, the plant, and the animal, and the relations of each to the other. The course is given to the First Year Short Course Students only, and forms a basis for the succeeding courses.

Three exercises per week. F.

Agriculture 2. Farm Equipment.

Lectures and recitations upon the selection, planning, and equipment of farms; fences and fencing material; drains and drainage; farm wells; objects, methods, and implements of tillage; cattle ties, mangers, etc. Practical exercises in leveling and laying out of drains, and in the preparation of plans and maps of farms. For Agricultural Juniors and Second Year Short Course Students.

Three exercises per week. F.

Agriculture 3. Soil Physics.

Lectures and recitations upon the formation, kinds, and physical properties of soils; the movements and conservation of soil moisture; the relation of heat and air to soil; the nature and physical effects of tillage and fertilizers; laboratory work and

experimentation with soils to show the physical effects of different conditions and texture. For Agricultural Juniors and Second Year Short Course Students.

Three exercises per week. W.

Agriculture 4. Farm Crops.

Lectures and recitations upon the history, use, methods of culture, harvesting, storing and marketing of farm crops; practical work in judging and scoring the different varieties of grain, together with a study of growing and dried specimens of grasses, clover, rape, and other forage crops. For Agricultural Juniors and Second Year Short Course Students.

Three exercises per week. S.

Agriculture 5. Manures and Fertilizers.

The course will consist of lectures and recitations, with a brief review of the principles of plant nutrition. There will be considered in detail the constituents of farm manures and chemical fertilizers; care of manures; different methods of application, and the modifications required by different soils and crops. Elective for Agricultural Seniors; required for Second Year Short Course Students.

Three exercises per week. S.

Agriculture 6. Origin of Soils and Soil Management.

Lectures and recitations upon the origin, distribution, and classification of soils from a geological standpoint; their classification upon the basis of texture; soil maps and mapping; the improvement of soils by different methods of cultivation, drainage, rotation of crops, and green-manuring; the establishment and maintenance of good tilth. Laboratory experimentation. Elective for Agricultural Seniors.

Two exercises per week. W.

ZOOTECHNY, OR ANIMAL INDUSTRY.

Agriculture 18. Animal Husbandry.

This course consists of lectures and recitations upon the different breeds of live stock; the principles of stock breeding and feeding; the care and management of stock, and the raising of poultry. It is a general elementary course especially arranged for the Second Year Short Course Students.

Three exercises per week. F.

Agriculture 7. Breeds of Cattle.

Lectures and recitations upon the origin, history, characteristics, adaptability, and management of the different breeds of cattle.

A study of the beef breeds from the standpoint of the demands of the market; the methods of beef production and the preparation of cattle for sale and exhibition.

A study of the dairy breeds from the standpoint of the production of milk, butter, and the selection of individuals for the dairy herd. Practice in judging the different breeds.

For Agricultural Sophomores and Second Year Short Course Students.

Three exercises per week. F.

Agriculture 8. Breeds of Sheep and Swine.

Lectures and recitations upon the origin, history, characteristics, and adaptability of the different breeds; care and management of sheep under various conditions; different grades of wool, their uses and value; comparative quality and value of the different portions of the carcass; the raising of early lambs; care and management of swine; selection of breeding stock; preparation of swine for exhibition; influence of different kinds of food upon pork production. Practice in judging the different breeds.

For Agricultural Sophomores and Second Year Short Course Students.

Three exercises per week. W.

Agriculture 9. Breeds of Horses.

Lectures and recitations upon the origin, history, characteristics, adaptability, and management of the different breeds; classification, breeding, and preparation of the different classes for the market; training and the proper methods of harnessing and hitching. Practice in judging the different classes. For Agricultural Sophomores.

Three exercises per week. S.

Agriculture 10. Principles of Breeding.

Lectures and recitations upon the laws of heredity, its operation under various conditions; value of selection in improving and maintaining a high standard of excellence in farm stock; variation, its extent and cause; methods of breeding, including

a discussion of inbreeding, crossing, and grading. Practice will be given in tracing and writing pedigrees. For Agricultural Juniors.

Three exercises per week. W.

Agriculture 11. Veterinary Elements.

Lectures and recitations upon the construction and functions of the animal body; holding a post-mortem; simple farm medicines, modes of application; care of sick animals; breeding and some of its effects; common farm operations. For Agricultural Juniors and Second Year Short Course Students.

Four exercises per week. W.

Agriculture 12. Animal Diseases.

Lectures and recitations upon the common infectious and contagious diseases affecting farm animals; their causes and methods of treatment. For Agricultural Juniors and Second Year Short Course Students.

Three exercises per week. S.

Agriculture 13. Stock Feeding.

Lectures and recitations upon the laws of nutrition; composition and digestibility of feeding stuffs; influence of feed on the animal body; preservation and preparation of coarse fodders, ensilage; grinding, steaming, and cooking food. A study of the leading cereals and their by-products. Practice will be given in computing and compounding rations for various purposes. For Agricultural Juniors and Second Year Short Course Students.

Four exercises per week. S.

Agriculture 14. Animal Mechanics.

Lectures and recitations upon the principles of mechanics as applied to the animal machine; the proportions and conformation of horses for speed and for draft; modes of progression or the various gaits of the horse. Practical exercises in measuring animals and testing the value of given measurements for given purposes. Course to be given every other year, beginning with 1904. Elective for Agricultural Seniors.

Four exercises per week. F.

RURAL ENGINEERING AND FARM ECONOMY.

Agriculture 15. Agricultural Seminary.

This course consists of library and reference work, and a study of current agricultural literature. Each student will prepare during the term a certain number of abstracts, reports of papers upon topics relating to agriculture. For Agricultural Seniors.

Two exercises per week. F.

Agriculture 16. Rural Architecture and Farm Mechanics.

Lectures and recitations upon the principles of construction of farm buildings; barns and silos; construction and maintenance of country roads; principles of draft; farm motors and machinery. Practical work in testing and comparisons of various makes and kinds of farm machinery. For Agricultural Seniors.

Three exercises per week. S.

Agriculture 17. History of Agriculture and Rural Economics.

Lectures and recitations upon the history of agriculture from early Egyptian to modern American; present agricultural methods and systems in various countries; cost and relative profits of the different systems of farm operations in the United States. For Agricultural Seniors.

Three exercises per week. S.

BOTANY.

1. Ecology.

Recitation and laboratory work on the adaptations of plants to their environments. For First Year Short Course Students.

Three exercises per week. F.

2. Structural and Physiological Botany.

Recitations and laboratory work. For First Year Short Course Students.

Two exercises per week. W.

3. Structural Botany.

For agricultural and general Freshmen and first year short course men. Open to students who present entrance Botany or have completed courses 1 and 2.

Three exercises per week. S.

4. Plant Diseases.

A study by means of lectures and laboratory work of some of the more important fungous and other diseases of plants and the means of preventing their injuries. For Agricultural Sophomores and Second Year Short Course Students.

Two exercises per week. F.

5. Advanced Systematic Botany.

A study of some group of plants in the local flora involving laboratory and field work. For Agricultural and General Seniors. Open to those who have completed Course 3.

Three exercises per week. F.

6. Advanced Botany.

Courses 6 and 7 consist of special advanced work arranged to suit the needs of individual students. For Agricultural and General Seniors. Open to those who have completed Course 3.

Three exercises per week. W.

7. Advanced Botany.

For Agricultural and General Seniors.

Three exercises per week. S.

CHEMISTRY.

1. Inorganic Chemistry.

Lectures and recitations on general and theoretical chemistry, illustrated by experiments, charts, specimens, lantern views, etc. Solutions of chemical problems will be required. Required of all Freshmen.

Three exercises per week. F.

2. Inorganic Chemistry.

Course 2 is a continuation of Course 1, but the time will be mainly spent on the metallic elements, their metallurgy, salts, etc.

Open only to students who have completed Course 1.

Three exercises per week. W.

3. Organic Chemistry.

Course 3 will consist of lectures and recitations on the chemistry of the carbon compounds, together with the study of their properties. For Agricultural and Chemical Freshmen. Elective for General Freshmen.

Open only to students who have completed Courses 1 and 2.

Three exercises per week. S.

4. Qualitative Chemical Analysis.

Course 4 consists of laboratory practice, with occasional lectures. The student is expected to become proficient in the separation and detection of the common acids and bases, and to keep a full set of notes. He will have practice in the writing of reactions, and will fill out numerous slips containing questions bearing upon his work. For Chemical Sophomores.

Agricultural and General Sophomores, three exercises per week. F. and W.

Open only to students who have completed Course 1.

Five exercises per week. F.

5. Qualitative Chemical Analysis.

A shorter course arranged especially for Engineering Sophomores.

Open only to engineering students who have completed Course 1.

Two exercises per week. F. and W.

6. Chemistry of Plant Growth.

The composition of plants at different stages of growth and the conditions necessary for their development. This subject

must be preceded by Chemistry Courses 1, 2, and 3. For Agricultural and Chemical Sophomores; elective for General Juniors.

Three exercises per week. F.

7. Chemistry of Food and Nutrition.

These subjects include the composition of foods and the animal body; the assimilation of the former by the latter, and the principles underlying a rational diet. This subject should be preceded by Course 6. For Agricultural and Chemical Sophomores; elective for General Juniors.

Two exercises per week. W.

8. Organic Reactions.

Recitations and laboratory practice on qualitative organic analysis and reactions. For Chemical Sophomores.

Open only to students who have completed Course 3.

Two exercises per week. S.

9. Organic Chemistry.

Course 9, for Juniors in the Chemical Division of the Agricultural Course, and in the Technical Chemistry Course, consists of laboratory practice by the students in preparing and purifying products relating to their respective lines of work.

Open only to students who have completed Course 3.

Two exercises per week. F.

10. Quantitative Analysis.

A preliminary course in quantitative analysis to familiarize the student with the general methods of chemical manipulation. For Chemical Sophomores. Elective in the general course in Sophomore, Junior, and Senior years.

Open only to students who have completed Chemistry 4.

Seventy exercises. Number per week varies with course.

11. Advanced Quantitative Analysis.

Course 11 is arranged for students of the Chemical Courses, and is intended to fit them for work in the laboratories of agri-

cultural experiment stations, fertilizer works, iron works, sugar refineries, etc., and for the duties of the public analyst. This course will be made to fit the end which each has in view, and will be largely an individual one. For those students in the Chemical Division of the Agricultural Course the analyses made will tend in the main toward agricultural products, fertilizers, mucks, marls, manures, dairy products, waters, foodstuffs, sugars, etc. For the student wishing to enter metallurgical works, the analyses will be in the main upon iron, steel, and other metals, ores, limestones, slags, alloys, fuels, etc. As a preparation for the study of medicine, work will be done on poisons, foods, drugs, urine, etc. Other lines will be arranged to meet the wants of the individual student. Each student will be given some practice in all of the branches of agricultural, metallurgical, medical, sanitary, and industrial chemistry, in order to lay a foundation for any future work which may be required of him. A short course in gas and oil analysis will also be provided. For Chemical and General students.

Open only to students who have completed Course 10.
Number and time of exercises varies with the course.

12. Chemical Journals, Methods, etc.

The work consists of the study of current chemical literature, which is mainly in the German language, with recitations once a week throughout the year. Each student will be expected to prepare abstracts, reports, criticisms, etc., upon assigned articles. For Chemical Seniors.

Open to students who have begun Course 11.
One exercise per week through the year.

13. Industrial Chemistry.

Course 13 consists of lectures on chemical manufactures, such as sugar, sodium carbonate, fertilizers, sulphuric acid, glass, matches, paints, dyes, soaps, illuminating gas, petroleum, etc. The lectures will be illustrated by lantern views; and trips to the leading New England cities, to examine important chemical manufactures, will be taken as far as practicable. For Chemical Juniors.

Open only to those who have completed Courses 1 and 2.

Two exercises per week. W.

14. Metallurgy.

Course 14 consists of lectures describing the processes employed in the smelting of the ores of iron, lead, copper, zinc, silver, gold, etc., and upon the methods used in refining these metals. The lectures are illustrated by stereopticon and by specimens of metallurgical products. For Chemical Juniors.

Open only to those who have completed Courses 1 and 2.

Two exercises per week. S.

15. Physical Chemistry, Lectures.

The work consists of advanced study of chemical theory. Practical experiments will be performed, with the aid of the student in the determination of vapor density, molecular weights, specific heat, etc.; and the study of isomorphism, diffusion of gases, solutions, ionization, electrolysis, molecular, and atomic volume, thermo chemistry, equilibrium, the phase rule, etc., will take up much of the time.

Course 15 comes in alternate years with Course 13, and is open to students who have completed Courses 1, 2, and 11.

Three exercises per week. W.

16. Physical Chemistry, Lectures.

A continuation of Course 15, and is given in alternate years with Course 14.

Two exercises per week. S.

17. Agricultural Analysis.

This course is arranged especially for students of the Agricultural Course, and consists mainly of the quantitative determination of the constituents of milk, butter, fertilizers, grain, etc.

Open only to students who have completed creditably the work of Courses 1, 2, 3, and 4 or 5.

Three exercises per week through the year.

18. Metallurgical Analysis.

This course is arranged for the students of the engineering departments who may elect the same, and consists mainly of the

quantitative determination of ores, slags, metals, alloys, fuels, etc.

Open only to students who have completed creditably the work of Courses 1, 2, 3, and 4 or 5.

Three exercises per week through the year.

19. Assaying. *Ten exercises.*

A course in the fire assay of gold and silver ores.

Open only to students who have taken Courses 10 or 18.

20. Thesis.

The work of the last two terms of the Technical Chemistry Course is given up to the special study of some selected subject in any branch of chemical science, and the student is required to present a thesis showing him to be capable of independence of thought.

21. Chemical Research.

Especially arranged for students of the Course in Technical Chemistry who are in advance of their course.

DAIRYING.

1. Milk and Milk Testing.

Lectures and recitations on the secretion, nature, and composition of milk, its uses and value as an article of food. The causes and conditions influencing the quality of milk and the care of milk on the farm. The principles of the Babcock test and its application on the dairy farm, and in the creamery or milk inspector's laboratory. Under the guidance of the instructor the student will practice testing milk and its products until competent to perform the work. In connection with the lactometer the test will be made the subject of practice in estimating milk solids. For Agricultural Juniors.

Five exercises per week. F.

2. Dairy Bacteriology.

Lectures, recitations, and demonstrations covering the more important facts in the relation of bacteria to dairying. Instruc-

tion and practice in pasteurizing milk and cream for market and for butter-making; also in making and using starters, and ripening cream. For Agricultural Juniors and students in ten weeks' course in Dairying.

Two exercises per week. W.

3. Dairy Machinery.

Lectures on the construction, operation, and care of dairy and creamery appliances. Each student is required to take apart and assemble leading makes of cream separators and to operate them carefully and efficiently, and present a written description of each, with a record of capacity and efficiency under his management. For Agricultural Juniors.

Open to those who have completed Course 1.

Three exercises per week. S.

4. Butter-making.

Text-book study, recitations, and lectures are supplemented by practice in the creamery. The student is trained to perform all parts of the work and to understand thoroughly the details which make possible the production of fine butter. For Agricultural Seniors.

Open to those who have completed Course 1.

Three exercises per week. F.

5. Cheese-making.

A course of lectures will be given covering the details of manufacture, curing, and marketing of the more important kinds of cheese. The course will cover work done in European countries as well as that done in Canada and the United States. For Agricultural Seniors.

Three exercises per week. W.

6. Creamery and Dairy Management.

Students are taught the method of keeping creamery and dairy accounts, and will be required to present sample accounts covering a period of one month. Plans of dairy buildings, creameries, and cheese factories are also required, with estimates for building and equipment. For Agricultural Seniors.

Open to those who have completed Courses 1-4.

Three exercises per week. S.

7. Milk and Milk Testing.

The same as Course 1. For First Year Two-year Students.

Five exercises per week. S.

8. Practical Work.

For students in ten weeks' course in Dairying.

Five exercises per week. W.

9. Dairy Machinery.

Lectures on the construction, operation, and care of dairy and creamery appliances. For students in the ten weeks' course in Dairying.

One exercise per week. W.

10. Butter-making.

Text-book study, recitations, and lectures. For students in the ten weeks' course in Dairying.

One exercise per week. W.

DRAWING.*

These courses are of an industrial nature and include both free-hand and mathematical branches of this subject. They aim to cultivate accurate observation, careful thinking in applying the underlying theories, and manual dexterity in making the graphic records. The immense value of drawing as a means of expression is coming to be more and more fully recognized.

The work of the first two terms is required of all regular students in four years' courses.

The advanced mathematical and machine drawing is prescribed for engineering courses.

The advanced free-hand drawing is elective, and may be taken only by those with adequate preparation.

* Do not purchase drawing instruments or materials until you have consulted the instructor as to what is necessary. Students intending to take an engineering course should purchase high grade instruments.

1. Industrial Drawing.

Free-hand lettering, elementary free-hand industrial drawing. For all Freshmen.

Two exercises per week. F.

2. Industrial Drawing.

Use of instruments. Mathematical drawing. For all Freshmen.

Two and one half exercises per week. W.

Note.—Alternating with Shop-work on Wednesdays.

3. Industrial Drawing.

Mathematical drawing, working drawings, tracings, blue prints. For Engineering and Chemical Freshmen.

Three exercises per week. S.

4. Orthographic Projection.

Drawing exercises in practice of this method of representation. For Engineering and Chemical Sophomores.

Two exercises per week. F.

5. Descriptive Geometry.

Recitations and drawing exercises in the solution of problems in plane and solid geometry, by means of orthographic projections, including shades, shadows, and perspective. For Engineering Sophomores.

Two exercises per week. W.

6. Continuation of 5.

Five exercises per week. S.

7. Continuation of 6.

For Engineering Juniors.

Two exercises per week. F.

5, 6, and 7 are open only to those who have passed Mathematics 2.

8. Technical Drawing.

Drawing exercises on making "working drawings," and study of details of drafting-room practice. For Engineering Juniors.

Two exercises per week. W.

9. Continuation of 8.

Two exercises per week. S.

10. Continuation of 9.

For Mechanical Engineering Seniors.

Three exercises per week. F.

11. Industrial Drawing.

Light and shade drawing from the cast and from still life; pencil sketching; details of building construction; projection drawing; perspective. For General Course Sophomores.

Two exercises per week. W.

12. Continuation of 11.

Three exercises per week. S.

13. Industrial Drawing.

Study of architectural detail; use of color; pencil sketching; perspective; historic ornament. For General Course Juniors.

Three exercises per week. F.

14. Continuation of 13.

Two exercises per week. W.

15. Continuation of 14.

Three exercises per week. S.

16. Drawing and History of Painting.

Antique figure from casts, pencil sketching, charcoal drawing, use of water colors; study of the history of painting. For General Course Seniors.

Three exercises per week. F.

17. Continuation of 16.

Three exercises per week. W.

18. Continuation of 17.

Three exercises per week. S.

Subjects in Nos. 11 to 18 inclusive are elective in the General Course.

ELECTRICAL ENGINEERING.

1. Direct Currents and Direct Current Dynamos.

Engineering Juniors, *three exercises per week. F.*

This course is taken up upon completion of physics 5, and begins with the study of the magnetic field produced by permanent and electro magnets, the different forms of field magnets, the physical theory of the dynamo, and the calculations of the magnetic circuit. The next items are the choice of insulating materials and the copper for the coils, the consideration of armature reactions, and the theory of commutation. Upon completion of the text on characteristic curves, a very thorough test is made of an Edison 3 K-W compound dynamo to determine its series—shunt and compound characteristics.

The text-book used in Courses 1 to 3 is S. P. Thompson's Dynamo Electric Machinery, Vol. I, Direct Currents.

2. Direct Current Dynamos and Motors.

Engineering Juniors, second term, *three exercises per week. W.*

The following subjects are taken up this term: The theory of armature winding and construction; mechanical points of design and construction; the various losses; and the design of closed coil types of dynamos.

3. Direct Current Dynamos and Motors.—A continuation of Course 2.

Engineering Juniors, first five weeks, *three exercises per week. S.*

Upon completion of Course 2, a study is made of arc lighting dynamos, machines for special purposes, direct current motors and their design, regulators, controllers, and the management of dynamos and motors.

4. Theoretical Electricity.

Electrical Engineering Juniors, first term, *three exercises per week. F.*

This course begins with the study of the fundamental and derived units, the latter of which include the electrostatic, the electromagnetic, and practical systems, and their conversion factors. The general theorems of the electrostatic field are devel-

oped mathematically, the laws are stated, and practical application is made of them in the design of commercial apparatus.

Following this part of the subject, a study is made of magnetism, and the magnetic field due to magnets, magnetic shells, and circuits traversed by electric currents.

The equivalence of magnetic shells and voltaic circuits is considered with regard to its important application in galvanometers, voltmeters, etc. The theory of measuring instruments of different types is studied in detail.

5. Theoretical Electricity.

Electrical Engineering Juniors, *three exercises per week. W.*

This is a continuation of Course 4. The laws of series and parallel circuits, the laboratory methods of measuring the various electrical quantities, such as electromotive forces, resistances, capacities, permeability of iron, etc., the methods of standardizing instruments, the laws of electrolysis, etc., constitute the subjects taken up in Courses 5 and 6.

A large number of examples from Hooper and Wells' "Electrical Problems" are solved as a part of Courses 5 and 6. The text used is S. P. Thompson's "Elementary Lessons in Electricity and Magnetism," accompanied by notes based upon the work of Maxwell, Gray, J. J. Thomson, Gerard, Entage, Nipher, Foster, Jackson, and others.

6. Theoretical Electricity Alternating Currents.

Electrical Engineering Juniors, *six exercises per week. S.*

This course begins with the study of the properties of periodic curves, the average and virtual values of the ordinates of sine curves, followed by the development of general expressions for the instantaneous electromotive force impressed upon, and the energy spent in a series circuit, containing resistance R, self-induction L, and capacity S, in terms of their components.

The phase relations of these component quantities are studied by plotting curves for a typical circuit of assumed data.

D. C. Jackson's "Alternating Currents and Alternating Current Machinery" is the text upon which Courses 6, 7, 8, and 9 are based.

7. Theoretical Electricity.—"Alternating Currents and Alternating Current Machinery."

Electrical Engineering Seniors, first term, *five exercises per week. F.*

Considerable time is spent in getting a correct knowledge of typical series and parallel circuits containing inductive and condenser reactances.

The solution of problems by the analytical and graphical methods, the methods of measuring inductances, power, etc., the magnetic circuit of alternators, the regulation efficiences, and losses of machines of different types receive due attention.

8. Theoretical Electricity.—"Alternating Currents and Alternating Current Machinery."

Electrical Engineering Seniors, *five exercises per week. W.*

A detailed study of the transformer is made and formulæ of design are developed, which enable its operation to be predicted under various conditions. Jackson's text is used, in addition to notes from Bedell's and Fleming's works on the transformer.

This is followed by the study of Polyphase Electric Currents and Machinery, in which S. P. Thompson's book is used in class, along with that portion of Jackson's work on the same subject.

9. Alternating Current Phenomena.

Electrical Engineering Seniors, *three exercises per week. S.*

Steinmetz's text is used in class.

Electrical Engineering 10 to 18 are taken by Seniors of the Electrical Engineering Course.

10. The Telephone.

First term, *three exercises per week for six weeks. F.*

A course of lectures and recitations on the acoustic and electrical principles of telephony, the different forms of calling and receiving apparatus and accessories, and simple circuits constitute the introduction to the course. This is followed by a consideration of the more complex forms of circuits, exchange switchboards, transfer systems, and the construction of overhead and underground systems.

Kempster B. Miller's "American Telephone Practice" is used as a text.

11. The Telegraph.

Three exercises per week for six weeks. F.

The work of this course consists of a careful study of the elementary electrical principles of telegraphy, the construction and

connection of lines, repeaters, high speed telegraphy, simple and multiplex telegraphy, submarine signalling, automatic devices, general electric signalling for purposes of alarms, railroads, etc., and wireless telegraphy.

The text used is Maver's "American Telegraphy."

12. Storage Batteries.

Three exercises per week the last three weeks. F.

This is a course of lectures, discussing the different types of cells, charging, discharging, their care and management, their commercial application for keeping the voltage constant at feeding centers, etc., and as sources of constant potential for laboratories.

Notes and references are used by the class.

13. Electric Lighting.

Three exercises per week. W.

This course covers such subjects as general electrical distributions for series and parallel systems, the development of wiring formulæ, the calculation of size of feeders and mains, the regulation of feeder voltages, two and three wire systems, overhead and underground conductors, a detailed study of the arc and incandescent lamps, alternating current systems of distribution by transformers, etc.

Crocker's "Electric Lighting," Vol. II, is used as a text.

14. Power Distribution for Electric Railroads.

Three exercises per week. W.

The chief items considered are the location of the power station as determined by economical questions, the fluctuations of load and their nature and magnitude, feeding and return systems, boosters, substations, fast and heavy railway service, alternating current motors for railroads, car equipment, controllers, safety devices, line and track construction, operation and maintenance. In connection with this course several exercises are devoted to electricity in mining.

The text used is Bell's "Power Distribution for Electric Railroads."

15. Electrical Laboratory.

Two exercises per week. F.

Courses 15, 16, and 17 are consecutive, and consist in the measurement of resistances, inductances, the calibration of a bal-

listic galvanometer and Ryan electrometer, the permeabilities of samples of iron. Tests are made on a small dynamo, connected to run as a direct current series, a shunt, or a compound motor to determine the speed, torque, current, output, and efficiency curves of motors. The determination of the candle power of incandescent and arc lamps, the calibration of resistances, the measurement of power in alternating current circuits, alternator characteristics, the running of synchronous motors, the load curves of a transformer, power measurement by a wattmeter, and the study of polyphase machinery constitute the remainder of the course.

The laboratory manual used is Swenson and Frankenfield's "Testing of Electro Magnetic Machinery."

16. Electrical Laboratory.

Two exercises per week. W.

17. Electrical Laboratory.

Two exercises per week. S.

18. Thesis.

Three exercises per week. S.

19. Alternating Currents.

Three exercises per week for five weeks. S.

This is a brief course taken by Juniors of the Mechanical Engineering Course upon completion of Courses 1, 2, and 3. The text-book used is Franklin and Williamson's "Alternating Currents."

20. Alternating Currents.

Three exercises per week for the first eight weeks. F.

This is a continuation of Course 19 and is taken by Seniors of the Mechanical Engineering Course.

21. Applications of Electricity.

Three exercises per week for the last seven weeks. F.

This is a course of lectures on the telephone, telegraph, storage batteries, electric lighting, and electric railroads, and is given to Seniors of the Mechanical Engineering Course upon completion of Courses 19 and 20.

Courses 22 and 23 are taken by Technical Chemistry Seniors.

22. Industrial Electricity.

Three exercises per week. F.

The principles and methods employed in electrical measurements, such as resistance of wires and batteries, e. m. f. of cells, current measurement by ammeters and electrolysis, the use of the voltmeter, etc., will be carefully considered. A brief study will be made of the dynamo, motor, transformer, primary and secondary batteries, arc and incandescent lamps, and the general principles of electrical distribution.

23. Industrial Electricity.

Three exercises per week. W.

This is a continuation of Course 22. Slingo and Brooker's "Electrical Engineering" is used as a text-book in Courses 22 and 23.

ENGLISH.

Required of all Freshmen.

1. Rhetoric and Composition.

Two exercises per week. F.

2. Rhetoric and Composition.

Two exercises per week. W.

3. Rhetoric and Composition.

One exercise per week. S.

4. Chaucer to Wordsworth. Lectures and Readings.

Open to Juniors.

Two exercises per week. W.

5. Wordsworth to Browning. Lectures and Readings.

Open to General and Agricultural Juniors and Chemical Seniors.

Two exercises per week. S.

6. Literary Criticism.

Recitations, readings, and a thesis. Open to Seniors.

Two exercises per week. F.

7. Course in Debating.

One exercise per week. W. or S.

8. American Literature.

For Agricultural and General Seniors.

Three exercises per week. W.

9. American Literature.

A continuation of 8.

Three exercises per week. S.

10. Grammar and Elementary Composition.

For First Year Short Course Students.

Five exercises per week. F.

11. Rhetoric.

Two exercises per week. W.

12. Rhetoric.

One exercise per week. S.

Students in the two years' course showing ability to carry the work are given Courses 1, 2, and 3, instead of 10, 11, and 12.

FORESTRY.

1. Arboriculture and Forestry.

This course is intended to give the student a knowledge of the various methods of forestry management in Europe and America. The text and lectures will cover the use of trees for shelter, shade, and ornament, and their propagation; value of trees for timber; how to improve existing woodlands; influence of forests upon soils, crops, and climate; establishment and management of plantations of forest trees.

For Agricultural Juniors.

Three exercises per week. W.

2. Forest Technology.

This course aims to give the student advanced theoretical and practical work in establishing, improving, and managing woodlands; estimating and measuring standing timber, and harvesting forest products. The physical properties of woods and forest

botany and entomology are here further considered. Seminary and laboratory work.

Elective for Agricultural Seniors.

Three exercises per week. F.

3. Forest Economics.

This course is special and offered only to students who have shown marked proficiency in Forestry 1 and 2. Climatic influences; soil and crop production; forest administration, forest laws and forest policies; forest distribution; and forest utilization.

Elective for Agricultural Seniors.

Three exercises per week. S.

FRENCH.

Courses 1, 2, and 3 are taken in Freshman year by students who offer German for admission.

1. Essentials of French Grammar and reading with practice in speaking and writing French. Dictation.

Three exercises per week. F.

2. Grammar continued. Simple stories, committing of poems to memory. Dictation.

Three exercises per week. W.

3. Reading of Modern French Prose, translation from English into French of connected narrative. Dictation.

Three exercises per week. S.

4. Reading and translation of Scientific French, Composition, Poems.

Three exercises per week. F.

5. Reading, Translation, and Composition continued.

Three exercises per week. W.

6. French Prose, History, and Travel; Composition based on some book read in class.

Three exercises per week. S.

7. French Prose, Sight Reading.

Hugo, Balzac, Sand.

Three exercises per week. F.

8. Classical French.

Corneille, Racine, and Molière.

Three exercises per week. W.

9. General Review of French Literature. Outside reading; sight work.

Three exercises per week. S.

GEOLOGY.

1. Mineralogy.

A short course in blowpipe analysis, followed by laboratory practice in the determination and study of minerals, with special reference to their economic value. For Chemical Sophomores and Engineering, General, and Agricultural Juniors.

Course 1 is open only to those who have taken Chemistry 1 and 2.

Three exercises per week. S.

2. Elementary Geology.

A brief course in the elements of Geology. Special attention is given to local geology and excursions are made to various points of interest in the vicinity. For Agricultural and General Juniors.

Open to those who have completed Zoology 1, 2, and 3, and Chemistry 1 and 2.

Four exercises per week. F.

GERMAN.

Courses 1, 2, and 3 are taken in Freshman year by students who offer French for admission. Courses 4, 5, and 6 are taken by all Sophomores.

1. German Grammar. Declension of articles, nouns, adjectives, and pronouns; verbs, weak and strong. Reading of simple stories; conversation. Dictation.

Three exercises per week. F.

2. Verbs, modal auxiliaries, essentials of syntax. Composition, Reading, and Translation; Poems. Dictation.

Three exercises per week. W.

3. Reading, Translation, and Composition; Sight Translation. Dictation.

Three exercises per week. S.

4. German Prose of the Nineteenth Century. Composition based on some book read in class.

Three exercises per week. F

5. German Prose of the Nineteenth Century continued. Composition, outside reading.

Three exercises per week. W.

6. Easier works of Lessing and Schiller. Composition.

Three exercises per week. S.

7. Masterpieces of German Literature. Lessing and Schiller.

Three exercises per week. F.

8. Goethe. German Ballads and Lyrics.

Three exercises per week. W.

9. General review of German Literature, outside reading.

Three exercises per week. S.

10, 11, and 12. Goethe and his contemporaries. Given in 1904-1905.

The aim throughout the courses in French and German is to train the students to make practical use of these languages. Considerable stress is laid, therefore, on reading aloud, dictation, and paraphrasing the assigned texts.

HISTORY.

In the courses in history an important place is given to historical reading carried on in the reference room. In some cases a considerable part of the work is written.

Courses 1 to 3 and Courses 4 to 6 are given on alternate years, Courses 4 to 6 being offered in 1905-'06.

Courses 1 to 6 are open only to those who have passed in Grecian and Roman History.

Courses 7 to 9 are open only to those who have passed in History and Constitution of the United States.

For General Course Freshmen and Sophomores.

Three or four exercises per week. F.

1. History of Europe from 814 to 1492. Recitations and collateral reading.

2. History of Europe from 1492 to 1598. Recitations and collateral reading.

For General Course Freshmen and Sophomores.

Three exercises per week. W.

3. History of Europe from 1598 to 1715. Recitations and collateral reading.

For General Course Freshmen and Sophomores.

Three or four exercises per week. S.

4. History of Europe from 1715 to 1789. Europe at the beginning of the French Revolution. Recitations and collateral reading.

For General Course Freshmen and Sophomores.

Three or four exercises per week. F.

5. History of Europe from 1789 to 1815. The French Revolution. Recitations and collateral reading.

For General Course Freshmen and Sophomores.

Three exercises per week. W.

6. History of Europe since 1815. Recitations and collateral reading.

For General Course Freshmen and Sophomores.

Three exercises per week. S.

In 1904-1905 Courses 10, 11, and 12 will be given instead of 7, 8, and 9. Open to Juniors and Seniors.

Three exercises per week. F., W., and S.

7. Political and Constitutional History of the United States from 1783 to 1840.

For General Course Juniors and Agricultural Seniors.

Four exercises per week. F.

8. Political and Constitutional History of the United States from 1840 to 1865.

For General Course Juniors and Agricultural Seniors.

Three exercises per week, W.

9. Political and Constitutional History of the United States since 1865.

For General Course Juniors and Agricultural Seniors.

Two exercises per week. S.

HORTICULTURE.

With the rapid development of agricultural education, the science of horticulture has become more clearly defined. Horticulture is sub-divided into four classes, viz.: (1) Pomology, or fruit growing; (2) Olericulture, or vegetable gardening; (3) Floriculture, or flower growing; and (4) Landscape Gardening.

1. Principles of Horticulture.

This course is elementary, and comprises the fundamentals of horticulture, emphasizing the sciences upon which horticulture rests, and the scope and importance of its field.

For Agricultural Freshmen.

Three exercises per week. S.

2. Olericulture.

Lectures and recitations upon the culture, classification, and identification of vegetables. The storing and marketing of vegetables is also considered. This course is given as a laboratory course of fifteen exercises in the fall term for the study and identification of varieties, and in the spring term twenty exercises are given to complete the course.

For Agricultural Sophomores.

Open only to those who have completed Botany 3 and are taking Botany 4.

3. Greenhouse Management.

Lectures, recitations, and laboratory work. This course aims to familiarize the student with modern methods of greenhouse work, and the more important plants grown under glass. Soils, varieties, culture, marketing, enemies, etc., are studied. Each student is required to do practical work in propagating, potting, watering, ventilating, etc. A study of the history and development of different types of greenhouses, including methods of heating and general management.

For Agricultural Sophomores and first year two-year men.

Three exercises per week. W.

4. Pomology and Viticulture.

The culture, classification, and identification of our leading commercial fruits are taken up for study in this course, the object being to familiarize the student with modern fruit growing, both the large or orchard fruits and the small or berry fruits. Lectures, recitations, and laboratory work.

For Agricultural Juniors and second year two-year men.

Open only to those having completed Botany 1 and Zoology 3.

Three exercises per week. F.

5. Floriculture and Home Decoration.

Lectures, recitations, and laboratory work. The culture and uses or ornamental plants are studied together with their history, classification, characteristics, propagation, and uses on private and public grounds.

For Agricultural Juniors and second year two-year men.

Open only to those who have completed Horticulture 3.

Three exercises per week. S.

6. Plant Breeding.

This course takes up the evolutionary study of plant life and points out through examples, largely of economic horticultural plants, their modification and improvement by mutation, crossing, dwarfing, forcing, etc. Recitations and seminary work.

For Agricultural Seniors.

Three exercises per week. W.

7. Landscape Gardening.

Lectures, recitations, and laboratory work on the principles of æsthetics as applied to natural scenery; designing, mapping, staking out, and planting private and public grounds, parks, cemeteries, etc., are studied and practised.

Courses Horticulture 3 and 5 must precede this course.

Three exercises per week. W.

8. Horticultural Seminary.

This course consists of the study of current horticultural literature and various advanced horticultural problems.

For Agricultural Seniors.

Two exercises per week. S.

MATHEMATICS.

1. Algebra completed.

For all Freshmen.

Five exercises per week. F.

2. Solid Geometry, with advanced course.

For Freshmen entering without the subject.

Three exrcises per week. F.

3. Plane and Spherical Trigonometry.

For all Freshmen.

Four exercises per week. W.

4. Surveying.

Recitations, field-work, and plotting, including compass, transit, plane-table, and level work. Required of Engineering, Chemical, and Agricultural Freshmen. Elective for General Course Freshmen.

5. Analytic Geometry.

For Engineering and Chemical Sophomores. Elective for General Course Sophomores.

Five exercises per week. F.

6. Differential Calculus.

For Engineering and Chemical Sophomores. Elective for General Course Sophomores.

Five exercises per week. W.

7. Integral Calculus.

For Engineering and Chemical Sophomores.

Five exercises per week. S.

8. Differential Equations.

For General Juniors.

Two exercises per week. F.

9. Quaternions.

For General Juniors.

Two exercises per week. W.

10. Astronomy.

For General Juniors.

Four exercises per week. W.

11. Roads, Streets, and Pavements.

Recitations and lectures on construction and maintenance of paved, macadamized, and gravel roads, with discussion of laws relating thereto. For Agricultural Seniors.

Three exercises per week. S.

12.

For first year short course students.

Three exercises per week. F.

13. Continuation of 12.

Three exercises per week. W.

METEOROLOGY.

1. Meteorology.

Recitations and lectures on wind systems, precipitation, humidity, laws of storms and tornadoes, and methods of prediction of atmospheric changes. For Agricultural and General Seniors.

Three exercises per week. S.

MECHANICAL ENGINEERING.

1. Mechanism.

Recitations and exercises in drawing outlines of elementary combinations of parts of machines, with special reference to the relative motion of the parts, their forms, and modes of connection. For Engineering Sophomores.

Two exercises per week. F.

2. Mechanism.

Continuation of 1.

Two exercises per week. W.

3. Mechanism.

Continuation of 1 and 2.

Two exercises per week. S.

4. Mechanics of Engineering.

Courses 4, 5, and 6 are devoted to recitations in statics and dynamics. For Engineering and Chemical Juniors.

Courses 4 to 6 are open only to those who have taken Mathematics 1 to 7, inclusive.

Two exercises per week. F.

5. Mechanics of Engineering.

Four exercises per week. W.

6. Mechanics of Engineering.

Four exercises per week. S.

7. Graphic Statics.

For Engineering and Chemical Juniors.

Two exercises per week. F.

8. Steam Engineering.

Recitations and lectures on thermodynamics, boilers, and valve gears. For Engineering Juniors.

Four exercises per week. F.

Course 8 is open only to those who have taken Courses 4 and 5, and Physics 1 and 2.

9. Steam Engineering.

Continuation of Course 8.

Three exercises per week. W.

10. Steam Engineering.

Continuation of Courses 8 and 9.

Four exercises per week. S

11. Materials of Construction.

Recitations on the production, properties, uses, and preservation of engineering materials. For Engineering Seniors.
Continuation of Courses 4-6.

Four exercises per week. F.

Course 4 is open only to those who have taken Courses 4, 5, and 6, and Chemistry 2.

12. Hydraulics.

For Engineering Seniors.

Open only to those who have taken Courses 4 to 6 and 8 to 10.

Three exercises per week. F.

13. Hydraulic Motors.

For Mechanical Engineering Seniors.

Course 13 is open only to those who have taken Course 12.

Three exercises per week. W.

14. Mechanical Laboratory.

Tests of materials, boilers, engines, pumps, indicators, etc. For Engineering Seniors.

Course 14 is open only to those who have taken Courses 1 to 12.

Two exercises per week. F.

15. Mechanical Laboratory.

Continuation of Course 14.

Three exercises per week. W.

16. Mechanical Laboratory.

Continuation of Courses 14 and 15.

Two exercises per week. S.

17. Multiple Expansion Engines.

For Engineering Seniors.

Three exercises per week. W.

18. Gas and Hot Air Engines and Refrigerating Machinery.

For Engineering Seniors.

Three exercises per week. S.

19. Machine Design.

For Mechanical Engineering Seniors.

Course 19 is open only to those who have taken Courses 4, 5, 6, and 11.

Four exercises per week. W.

20. Specifications and Contracts.

For Mechanical Engineering Seniors.

Three exercises per week. W.

21. Specifications and Contracts.

For Mechanical Engineering Seniors.

Three exercises per week. S.

MILITARY DRILL.

Practical instruction in drill and gymnastic exercises.

Four exercises per week throughout the Freshman, Sophomore, and Junior years.

MILITARY SCIENCE.

Theoretical instruction in drill regulations and the elementary principles of military science.

One exercise per week throughout the Freshman, Sophomore, and Junior years; three themes in the Senior year.

PHILOSOPHY AND EDUCATION.

1. The History of Educational Theory.

Open to Sophomores.

Two exercises per week. W.

2. Ethics.

Open to Sophomores.

Two exercises per week. S.

3. Psychology.

Open to Juniors and Seniors.

Three exercises per week. F.

4. The Philosophy of Education.

Open to Juniors and Seniors.

Three exercises per week. W.

5 or 6. Logic.

On alternate years a course in advanced logic will be given. Course 5 will be offered in 1905.

Open to Juniors and Seniors.

Three exercises per week. S.

PHYSICS.

Courses 1 to 5 are required of students in the Engineering and Technical Chemistry courses and presupposes a preparation in Mathematics through Trigonometry.

Courses 9 to 13 are required of students in the Agricultural Course. Students in the General Course are required to elect either 1 to 5 or 9 to 13.

1. Mechanics.

Freshmen, three exercises per week. S.

The principles and laws of general physics are illustrated by a number of experiments, and the student is taught to make ready application of his mathematics in the solution of problems.

It is intended to provide a foundation in the dynamics of solids, liquids, and gases, and also in the subjects of statics and hydrostatics.

Instruction is given by lectures, recitations, and problem work. The text used is Ganot's Physics. Reference is made to Ame's Theory of Physics, Watson's Physics, and other standard treatises.

2. Heat.

Sophomores, three exercises a week for first eight weeks. F.

The theories of heat are briefly discussed. The subdivisions of the subject, such as the nature of heat, its effects, thermometry, sources of heat, the transference and transformations of heat are considered in detail. Constant attention is given to the relation of these topics to the subject of thermo-dynamics. Ganot's Physics is used as the text.

3. Light.

Sophomores, three exercises a week for the last seven weeks. F.

The subject is approached from the geometrical and physical standpoint. A number of experiments are performed, illustrative of wave motion in general, followed by a study of that form of wave motion upon which the modern theory is based.

The subject is developed progressively, and due attention is given to such subjects as reflection, refraction, color, the spectrum, and interference and polarization phenomena.

The student makes a careful study of optical instruments of all classes. Ganot's Physics is used as the text.

4. Sound.

Sophomores, three exercises per week for the first five weeks. W.

The course consists of lectures and recitations, considerable emphasis being laid upon the relation of the subject to the transmission of speech.

The text used is Stone's Elementary Lessons in Sound.

5. Electricity and Magnetism.

Sophomores, three exercises per week for the last five weeks of the second term, and all of the third term. W. and S.

Numerous experiments are performed to illustrate the various phenomena of electrostatics, magnetism, current electricity, and electric waves. As the course advances, the attention of the student is constantly called to the applications of electricity to the arts and sciences.

6. Elements of Least Squares and the Precision of Measurements.

Juniors, three exercises per week. F.

This course is intended to serve as an introduction to the subject of Physical Measurements. It familiarizes the student with the precautions necessary in taking experimental data, and of properly using his data in order to secure the most reliable results.

A large number of problems are solved, illustrating the determination of physical constants, and in deducing the constants of empirical equations.

7. Physical Laboratory.

Juniors, three exercises per week. W.

The apparatus employed in the experimental part of Courses 7 and 8 is adapted to no special laboratory manual, and either notes are prepared for students' use, or reference is made to the works of Ames and Bliss, E. L. Nichols, H. M. Godwin, and others.

The laws of general physics are investigated experimentally. The student is encouraged to acquire skill in the manipulation of apparatus, habits of clearness and neatness in keeping records, as well as enthusiasm for independent and original investigation.

A careful study is made of the Analytical Balance, time measuring devices, heat measurements, the microscope, spectroscope, lens combinations, photometry, the laws of vibrating strings, and the simple electrical measurements.

8. Physical Laboratory.

Juniors, three exercises per week. S.

This is a continuation of Course 7 and is largely devoted to the calibration of galvanometers, ammeters, the determination of the constants of instruments, the measurement of voltages, resistances, etc.

On the completion of Courses 7 and 8, an examination is given to test the student's knowledge of physical research, both in attacking a given problem, and in thinking and acting for himself.

Physics 9 to 13 are given to students who do not intend to pursue mathematics beyond the subject of Trigonometry. These courses are accepted as the work required in the course in agriculture. Their completion does not prepare the student to enter Courses 7 and 8.

9. Mechanics.

Agricultural Freshmen, three exercises per week. S.

This is a briefer course than Physics 1, and aims to meet the needs of the student wishing to obtain some knowledge of the simpler physical phenomena, as related to the Science of Agriculture.

10. Heat.

Agricultural Sophomores, three exercises per week for six weeks. F.

11. Light.

Agricultural Sophomores, three exercises per week for five weeks. F.

12. Sound.

Agricultural Sophomores, three exercises per week for the last four weeks. F.

13. Electricity and Magnetism.

Agricultural Sophomores, three exercises per week throughout the term. W.

Physics 14 and 15 are intended to acquaint the student with the fundamental principles and facts of physics.

14. Elementary Physics.

First year of the short course in Agriculture, *three exercises per week. S.*

15. Elementary Physics.

Second year of the short course in Agriculture, *three exercises per week. F.*

This is the completion of the work begun under Course 14.

POLITICAL SCIENCE.

1. Political Economy.

An elementary course, with lectures upon some of the practical questions of the day.

For Agricultural and General Sophomores and Engineering and Chemical Seniors.

Five exercises per week. S.

2. Laws of Business.

Recitations supplemented by lectures and the discussion of cases.

Two credit hours.

Courses 2 and 3 are given consecutively in the Fall term.

Five exercises per week.

For Agricultural and General Seniors.

3. American Constitutional Law.

Use is made of Pomeroy's Constitutional Law, which is supplemented by the decisions of the United States Supreme Court.

Special attention is given to the connections between American constitutions and American political history.

Three credit hours.

4. Money and Banking.

Recitations, readings, and lectures.

For Agricultural and General Seniors.

Courses 4 and 6 are given in alternate years. Course 4 will be offered in the year 1904-'05.

Open only to those who have taken Course 1.

Three exercises per week W.

5. Socialism and Social Reform.

Readings, recitations, and lectures.

For Agricultural and General Seniors.

Courses 5 and 7 are given in alternate years. Course 5 will be offered in 1904-'05.

Open only to those who have taken Course 1.

Three exercises per week. S.

7. Public Finance.

For Agricultural and General Seniors.

Courses 5 and 7 are given in alternate years.

Open only to those who have taken Course 1.

Three exercises per week. W.

6. International Law.

For Agricultural and General Seniors.

Courses 4 and 6 are given in alternate years.

Three exercises per week S.

SHOP WORK.

Three hours' work in the shop is reckoned as one exercise.

1. Wood Work.

Exercises in carpentry work, joinery, and pattern making. For all male Freshmen.

Two exercises per week. F.

2. Wood Work.

A continuation of 1. For all male Freshmen.

Two and one-half exercises per week. W.

NOTE.—Alternate with Drawing on Wednesdays.

3. Wood Work.

For Chemical and Engineering Freshmen.

Two exercises per week. S.

4. Iron Work.

For Chemical Seniors and Engineering Sophomores.

Two exercises per week. F.

5. Iron Work.

For Chemical and Engineering Sophomores.

Two exercises per week. W.

6. Iron Work.

For Engineering Juniors.

Two exercises per week. F.

7. Iron Work.

For Engineering Juniors.

Two exercises per week. W.

8. Iron Work.

For Engineering Juniors.

Two exercises per week. S.

9. Iron Work.

For Mechanical Engineering Seniors.

Two exercises per week. F.

10. Iron Work.

For Mechanical Engineering Seniors.

Two exercises per week. W.

11. Iron Work.

For Mechanical Engineering Seniors.

Two exercises per week. S.

12. Wood Work.

For first year two-year students.

Three exercises per week. W.

13. Iron Work.

For first year two-year students.

Three exercises per week. S.

14. Special Shop Work.

Work arranged to suit the needs of particular students.

From one to four exercises per week. F.

15. Special Shop Work.

From one to four exercises per week. W.

16. Special Shop Work.

From one to four exercises per week. S.

SPANISH.

Spanish 1, 2, and 3.

Essentials of Spanish Grammar. Translation of modern Spanish prose. Stories and plays by modern authors will be read.

Three exercises per week. F., W., S.

Elective for General Course Students in Sophomore, Junior, or Senior year.

ZOOLOGY.

1. Introductory Zoölogy.

A general introduction to the study of animal life, by means of lectures and laboratory dissections of the principal types. For Agricultural and General Sophomores and second year short course students.

Three exercises per week. F.

2. Animal Biology.

A general study of the nature and processes of animal life, with special attention to heredity, variation, development, and mental powers.

Open to students who have taken Course 1.

Three exercises per week. W.

3. Entomology.

A review of the classification, structural characters, and biological relations of insects, with a special study of those injurious to cultivated crops and domestic animals, and of the means of preventing their injuries.

Open only to those who have taken Courses 1 and 2.

Three exercises per week. S.

ZOOLOGY.

The courses in Zoölogy are arranged in sequence for those studying Agriculture or Economic Entomology, and for those desiring a more general course fitting them for teaching or for medical studies, though any courses offered may be taken by those who have completed previous courses necessary.

1. Elementary Biology.

A general study of the lower forms of life by means of lectures and laboratory studies of the simplest plants and animals, forming an introduction to the study of both animal and plant life. For Agricultural and General Sophomores.

Three exercises per week. F.

2. Invertebrate Zoölogy.

The structure and life of the higher invertebrate animals with special study of insects. Lectures and laboratory dissections of typical forms. For Agricultural and General Sophomores completing Course 1.

Three exercises per week. W.

3. Economic Entomology.

Insects affecting crops, domestic animals, etc., their life, histories, habits, and methods of combating them. Special consideration of general farm methods for control of insects affecting staple crops and of spraying, machinery, and insecticides for combating truck and fruit insects. For Agricultural Sophomores completing Course 2.

Four exercises per week. S.

4. General Entomology.

A general survey of the structure, habits, and classification of the different orders of insects. Lectures and laboratory dissections, field collecting and classification. For General Sophomores completing Course 2.

Four exercises per week. S.

5. Vertebrate Anatomy and Physiology.

The comparison of anatomy and physiology of vertebrate animals, general physiology of higher animals, and laboratory dis-

sections of a few typical forms. For Agricultural and General Juniors completing Courses 1 and 2.

Five exercises per week. F.

6. Principles of Zoölogy.

The history, fundamental principles, problems, and philosophy of Zoölogy. Lectures. For Agricultural and General Juniors having completed four previous courses.

Three exercises per week. W.

7. Economic Ornithology.

A study of the relation of birds to Agriculture, to each other and other organisms. For Agricultural and General Juniors.

One exercise per week. W.

8. Histology.

A study of the minute anatomy or cell structure of domestic animals and man; methods of preparing, staining, and mounting specimens and sections of tissues; the use of the microscope and accessories. For Agricultural and General Juniors completing Course 5.

Three exercises per week. S.

9. Advanced Economic Entomology.

The methods of study and general principles of combating insect pests; the literature and history of economic entomology; practice in determining and rearing and combating insect pests. For Agricultural Juniors having completed Course 3.

Three exercises per week. S.

10. Advanced Entomology.

Advanced work in General Entomology; collecting, classification and anatomical studies. For General or Agricultural Juniors having completed Course 2.

Three exercises per week. S.

11, 12, and 13. Advanced Zoölogy.

Averaging four exercises per week for the year. For students who elect Zoölogy for Senior Year to be arranged to suit individual needs. Open to those who have completed five previous courses and have shown proficiency in Zoölogy.

COURSES OF STUDY AND SCHEDULE OF HOURS.

For details see Description of Studies.

Chapel exercises: 11.50 daily. Attendance is required of all students.

Military drill: Fall term M., T., Th., F., 7 to 7.50 a. m. Winter and Spring terms, M., T., Th., F., 12 to 12.30. Attendance is required of all male students.

FRESHMAN YEAR.

For all Four-Year Courses.

FALL TERM.

	Exercises.
Rhetoric—English 1	2
Algebra—Mathematics 1	5
Wood Work—Shop Work 1	2
Drawing—Drawing 1	2
†History—History 1 or 4	3
French—French 1 or German—German 1	3
Inorganic Chemistry—Chemistry 1	3
*Solid Geometry—Mathematics 2	3
Military Science	1

WINTER TERM.

Rhetoric—English 2	2
Trigonometry—Mathematics 3	4
Wood Work—Shop Work 2	2½
Drawing—Drawing 2	2½
†History—History 2 or 5	3
French—French 2 or German—German 2	3
Inorganic Chemistry—Chemistry 2	3
Military Science	1

*Optional. Attention is called to preparation required for Drawing 5, 6 and 7. (See page 61.)

SPRING TERM.

Rhetoric—English 3	1
†Surveying—Mathematics 4	3
Mechanics—Physics 1	3
‡Mechanics—Physics 9	3
†Botany—Botany 3	3
†Wood Work—Shop Work 3	2
†Horticulture—Horticulture 1	2
†Drawing—Drawing 3	3
†History—History 3 or 6	3 or 4
French—French 3 or German—German 3	3
†Organic Chemistry—Chemistry 3	2
Military Science	1

COURSES IN AGRICULTURE.

Sophomore Year.

FALL TERM.

	Exercises.
German 4	3
Chemistry 4	3
Zoölogy 1	3
Physics 10, six weeks Physics 11, six weeks Physics 12, four weeks	3
Horticulture 2	1
Botany 4	2
Agriculture 7	3
Military Science	1

WINTER TERM.

German 5	3
Chemistry 4	3
Zoölogy 2	3
Physics 13	3

†In the first and second terms History is taken by women in place of Shop Work. It is also taken by students who are prepared for advanced work. In the third term Shop Work and Drawing are taken by students intending to complete either of the Engineering Courses or the course in Technical Chemistry; Botany is taken by all other students. Horticulture is taken by students intending to complete the Agricultural Course. History is taken by students intending to complete the General Course. Students in the General Course also elect between Surveying and Organic Chemistry.

‡For Agricultural students and such general students as elect it.

Horticulture 3	3
Agriculture 8	3
Military Science	1

SPRING TERM.

German 6	3
Zoölogy 3	4
Horticulture 2	2
Political Science 1	5
Agriculture 9	3
Military Science	1

Junior Year.

FALL TERM.

Chemistry 6	3
Geology 2	4
Dairying 1	5
*Zoölogy 5	5
Horticulture 4	3
Agriculture 2	3
Military Science	1

WINTER TERM.

Chemistry 7	2
English 4	2
*Zoölogy 6	1
*Zoölogy 7	3
Forestry 1	3
Agriculture 3	3
Agriculture 10	3
Agriculture 11	4
Military Science	1

SPRING TERM.

English 5	2
Geology 1	3
Horticulture 5	3
Agriculture 4	3
Agriculture 12	3
Agriculture 13	4
*Zoölogy 8, 9, or 10	3
Military Science	1

*Zoölogy Courses in Biological Division marked * above.

NOTE.—English 7. A course in debating, one hour per week, is required in the Junior year, either in the winter or spring term.

During the Junior year students who desire and are qualified to take up work in the Biological or Chemical Division of the Agricultural Course may substitute work in those divisions for Dairying, Agriculture 11, and Agriculture 12.

SENIOR YEAR.

FALL TERM.

(Required.)	Exercises per week.
Political Science 2 and 3	5
History 7	4
Agriculture 15	2
Thesis	1

(Six hours elective from any courses offered.)

WINTER TERM.

(Required.)	Exercises per week.
Political Science 6	3
History 8	3
Horticulture 6	3
Thesis	2

(Six hours elective from any courses offered.)

SPRING TERM.

(Required.)	
Meteorology 1	3
Agriculture 16	3
Agriculture 17	3
Thesis	2

(Six hours elective from any courses offered.)

COURSES IN ENGINEERING.

Sophomore Year.

FALL TERM.

	Exercises per week.
Analytic Geometry—Mathematics 5	5
Orthographic Projection—Drawing 4	2
Heat—Physics 2, eight weeks Light—Physics 3, seven weeks	3
German—German 4	3
Forge Shop—Shop Work 4	2
Mechanism—Mechanical Engineering 1	2
Chemical Laboratory—Chemistry 5	2
Military Science	1

WINTER TERM.

Differential Calculus—Mathematics 6	5
Descriptive Geometry—Drawing 5	2
Sound—Physics 4, five weeks Electricity and Magnetism—Physics 5, five weeks	3
German—German 5	3
Machine Shop—Shop Work 5	2
Mechanism—Mechanical Engineering 2	2
Chemical Laboratory—Chemistry 5	2
Military Science	1

SPRING TERM.

Integral Calculus—Mathematics 7	5
Electricity and Magnetism—Physics 5	3
German—German 6	3
Descriptive Geometry—Drawing 6	5
Mechanism—Mechanical Engineering 3	2
Military Science	1

COURSE IN ELECTRICAL ENGINEERING.

Junior Year.

FALL TERM.

Mechanics of Engineering—Mechanical Engineering 4	2
Theoretical Electricity—Electrical Engineering 4	3
Least Squares and Precision of Measurements—Physics 6	3

	Exercises per week.
Steam Engineering—Mechanical Engineering 8	4
Direct Currents and Direct Current Dynamos, Electrical Engineering 1	3
Descriptive Geometry—Drawing 7	2
Graphic Statics—Mechanical Engineering 7	2
Military Science	1

WINTER TERM.

Mechanics of Engineering—Mechanical Engineering 5	4
Physical Laboratory—Physics 7	3
Steam Engineering—Mechanical Engineering 9	3
Direct Current Dynamos and Motors—Electrical Engineering 2	3
Theoretical Electricity—Electrical Engineering 5	3
Technical Drawing—Drawing 8	2
Debating—English 7	1
Military Science	1

SPRING TERM.

Mechanics of Engineering—Mechanical Engineering 6	4
Physical Laboratory—Physics 8	3
Steam Engineering—Mechanical Engineering 10	4
Direct Current Dynamos and Motors—Electrical Engineering 3 Theoretical Electricity—Electrical Engineering 6	
Technical Drawing—Drawing 9	2
Military Science	1

Senior Year.

FALL TERM.

Materials of Construction—Mechanical Engineering 11	4
Theoretical Electricity—Electrical Engineering 7	5
Mechanical Laboratory—Mechanical Engineering 14	2
The Telephone, Electrical Engineering 10, six weeks The Telegraph, Electrical Engineering 11, six weeks Storage Batteries, Electrical Engineering 12, three weeks	3
or French—French 4	3
Hydraulics—Mechanical Engineering 12	3
Electrical Laboratory—Electrical Engineering 15	2

WINTER TERM.

	Exercises per week.
Electrical Laboratory—Electrical Engineering 16	2
Electric Lighting—Electrical Engineering 13	3
Power Distribution for Electric Railroads—Electrical Engineering 14	3
Mechanical Laboratory—Mechanical Engineering 15	3
Theoretical Electricity—Electrical Engineering 8	5
Multiple Expansion Engines—Mechanical Engineering 17	3
or French—French 5	3

SPRING TERM.

Mechanical Laboratory—Mechanical Engineering 16	2
Gas and Hot Air Engines—Mechanical Engineering 18	3
Alternating Current Phenomena—Electrical Engineering 9	3
or French—French 6	3
Electrical Laboratory—Electrical Engineering 17	2
Political Economy—Political Science 1	5
Thesis—Electrical Engineering 18	3

COURSE IN MECHANICAL ENGINEERING.

Junior Year.

FALL TERM.

	Exercises per week.
Mechanics of Engineering—Mechanical Engineering 4	2
Least Squares and Precision of Measurements—Physics 6	3
Steam Engineering—Mechanical Engineering 8	4
Direct Currents and Direct Current Dynamos—Electrical Engineering 1	3
Iron Work—Shop Work 6	2
Descriptive Geometry—Drawing 7	2
Graphic Statics—Mechanical Engineering 7	2
Military Science	1

WINTER TERM.

Mechanics of Engineering—Mechanical Engineering 5	4
Physical Laboratory—Physics 7	3
Steam Engineering—Mechanical Engineering 9	3
Direct Current Dynamos and Motors—Electrical Engineering 2	3
Iron Work—Shop Work 7	2

	Exercises per week.
Technical Drawing—Drawing 8	2
Debating—English 7	1
Military Science	1

SPRING TERM.

Mechanics of Engineering—Mechanical Engineering 6	4
Physical Laboratory—Physics 8	3
Steam Engineering—Mechanical Engineering 10	4
Direct Current Dynamos and Motors—Electrical Engineering 3, five weeks Alternating Currents—Electrical Engineering 19, five weeks	3
Iron Work—Shop Work 8	2
Technical Drawing—Drawing 9	2
Military Science	1

Senior Year.

FALL TERM.

Materials of Construction—Mechanical Engineering 11	4
Hydraulics—Mechanical Engineering 12	3
Technical Drawing—Drawing 10	3
Mechanical Laboratory—Mechanical Engineering 14	2
Iron Work—Shop Work 9	2
Alternating Currents, Electrical Engineering 20, eight weeks Applications of Electricity, Electrical Engineering 21, seven weeks	3
English 6	2

WINTER TERM.

Machine Design—Mechanical Engineering 19	4
Mechanical Laboratory—Mechanical Engineering 15	3
Multiple Expansion Engines—Mechanical Engineering 17	3
Iron Work—Shop Work 10	1
Hydraulic Motors—Mechanical Engineering 13	3
Specifications and Contracts—Mechanical Engineering 20	3
Thesis	2

SPRING TERM.

Gas and Hot Air Engines—Mechanical Engineering 18	3
Mechanical Laboratory—Mechanical Engineering 16	2
Political Economy—Political Science 1	5
Iron Work—Shop Work 11	2
Specifications and Contracts—Mechanical Engineering 21	3
Thesis	3

COURSE IN TECHNICAL CHEMISTRY.

Sophomore Year.

FALL TERM.

	Exercises per week.
Analytic Geometry—Mathematics 5	5
Orthographic Projection—Drawing 4	2
German—German 4	3
Chemical Laboratory—Chemistry 4	5
Heat—Physics 2, eight weeks Light—Physics 3, seven weeks	3
Military Science	1

WINTER TERM.

Differential Calculus—Mathematics 6	5
German—German 5	3
Chemical Laboratory—Chemistry 10	7
Sound—Physics 4, five weeks Electricity and Magnetism—Physics 5, five weeks	3
Military Science	1

SPRING TERM.

Integral Calculus—Mathematics 7	5
Mineralogy—Geology 1	3
German—German 6	3
Organic Chemistry—Chemistry 8	2
Chemical Laboratory—Chemistry 11	3
Electricity and Magnetism—Physics 5	3
Military Science	1

Junior Year.

FALL TERM.

Chemistry of Plant Growth—Chemistry 6	3
Organic Chemistry—Chemistry 9	3
French—French 4	3
Mechanics of Engineering—Mechanical Engineering 4	2
Graphic Statics—Mechanical Engineering 7	2
Chemical Laboratory—Chemistry 11	4
Military Science	1

WINTER TERM.

Chemical Laboratory—Chemistry 11	4
Industrial Chemistry—Chemistry 13	2
Mechanics of Engineering—Mechanical Engineering 5	4

	Exercises per week.
French—French 5	3
Physical Laboratory—Physics 7	3
Debating—English 7	1
Military Science	1

SPRING TERM.

Chemical Laboratory—Chemistry 11	4
Metallurgy—Chemistry 14	2
Mechanics of Engineering—Mechanical Engineering 6	5
French—French 6	3
Physical Laboratory—Physics 8	3
Military Science	1

Senior Year.

FALL TERM.

Chemical Laboratory—Chemistry 11 or Chemistry 21	8
Iron Work—Shop Work 4	2
Chemical Journals—Chemistry 12	1
Steam Engineering—Mechanical Engineering 8	4
Industrial Electricity—Electrical Engineering 22	3

WINTER TERM.

Chemical Laboratory and Thesis—Chemistry 20 or 21	8
Chemical Journals—Chemistry 12	1
Physical Chemistry—Chemistry 15	3
Industrial Electricity—Electrical Engineering 23	3
Chaucer to Wordsworth—English 4	2

SPRING TERM.

Chemical Laboratory and Thesis—Chemistry 20 or 21	6
Chemical Journals—Chemistry 12	1
Assaying—Chemistry 19	1
Physical Chemistry—Chemistry 16	2
Political Economy—Political Science 1	5
Wordsworth to Browning—English 5	2

GENERAL COURSE.

Sophomore Year.

FALL TERM.

	Exercises per week.
Elementary Biology—Zoölogy 1	3
German—German 4	3

	Exercises per week.
*Chemical Laboratory—Chemistry 4	3
Heat and Light—Physics 2 and 3, or Physics 10, 11, and 12	3
*History—History 1 or 4	4
*Analytic Geometry—Mathematics 5	5
*Spanish—Spanish 1	3
Military Science	1

*Elect 7 exercises.

WINTER TERM.

German—German 5	3
*Chemical Laboratory—Chemistry 4	3
Sound and Electricity—Physics 4 and 5 or Physics 13	3
*History—History 2 or 5	3
*Invertebrate Zoölogy—Zoölogy 2	3
*Differential Calculus—Mathematics 6	5
*Industrial Drawing—Drawing 11	2
*Spanish—Spanish 2	3
*Philosophy 1	2
Military Science	1

*Elect 10 exercises.

SPRING TERM.

Political Economy—Political Science 1	5
German—German 6	3
*Electricity and Magnetism—Physics 5	3
*History—History 3 or 6	3
*Entomology—Zoölogy 4	4
*Chemical Laboratory—Chemistry 10	3
*Industrial Drawing—Drawing 12	3
*Integral Calculus—Mathematics 7	5
*Philosophy 2	2
*Spanish—Spanish 3	3
Military Science	1

*Elect 8 exercises.

JUNIOR YEAR.

Sixteen exercises required; all elective, with the exception of Military Science and English 7.

FALL TERM.

Psychology—Philosophy 3	3
French—French 4	3
American Political History—History 7	4
Elementary Geology—Geology 2	4

	Exercises per week.
Chemistry of Plant Growth—Chemistry 6	3
Chemical Laboratory—Chemistry 4 or Chemistry 10	3
Least Squares and Precision of Measurements—Physics 6	3
Industrial Drawing—Drawing 13	3
Differential Equations—Mathematics 8	2
Spanish—Spanish 1	3
Vertebrate Anatomy and Physiology—Zoölogy 5	5
Military Science	1

WINTER TERM.

French—French 5	3
American Political History—History 8	3
English 4	2
Philosophy of Education—Philosophy 4	3
Money and Banking, or International Law—Political Science 4 or 6	3
Chemistry of Food and Nutrition—Chemistry 7	2
Chemical Laboratory—Chemistry 4 or Chemistry 10	3
Physical Laboratory—Physics 7	3
Industrial Drawing—Drawing 14	2
Quaternions—Mathematics 9	2
Principles of Zoölogy—Zoölogy 6	3
Spanish—Spanish 2	3
Economic Ornithology—Zoölogy 7	1
Debating—English 7	1
Military Science	1

SPRING TERM.

French—French 6	3
Mineralogy—Geology 1	3
Logic, or Science of Thought—Philosophy 5 or 6	3
American Political History—History 9	2
Socialism or Finance—Political Science 5 or 7	3
English—English 5	2
Industrial Drawing—Drawing 15	3
Chemical Laboratory—Chemistry 10 or 11	3
Physical Laboratory—Physics 8	3
Spanish—Spanish 3	3
Debating—English 7	1
Histology—Zoölogy 8	3
Advanced Economic Entomology—Zoölogy 9	3
Advanced Entomology—Zoölogy 10	3
Military Science	1

Senior Year.

Sixteen exercises required; all elective.

FALL TERM.

	Exercises per week.
Laws of Business—Political Science 2 Constitutional Law—Political Science 3	5
Psychology—Philosophy 3	3
French—French 7	3
Literary Criticism—English 6	2
German—German 7	3
Chemical Laboratory—Chemistry 10 or 11	3
Advanced Zoölogy—Zoölogy 11	4
Advanced Botany—Botany 5	3
Drawing and History of Painting—Drawing 16	3
Spanish—Spanish 1	3
Thesis Work	2

WINTER TERM.

Money and Banking, or International Law—Political Science 4 or 6	3
Philosophy 4	3
French—French 8	3
German—German 8	3
American Literature—English 8	3
Astronomy—Mathematics 10	4
Chemical Laboratory—Chemistry 11	3
Advanced Zoölogy—Zoölogy 12	3
Advanced Botany—Botany 6	3
Drawing and History of Painting—Drawing 17	3
Spanish—Spanish 2	3
Thesis Work	1 or 2

SPRING TERM.

American Literature—English 9	3
French—French 9	3
German—German 9	3
Meteorology—Meteorology 1	3
Roads—Mathematics 11	3
Socialism or Finance—Political Science 5 or 7	3
Logic or Science of Thought—Philosophy 5 or 6	3
Chemical Laboratory—Chemistry 11	3
Advanced Zoölogy—Zoölogy 13	3
Advanced Botany—Botany 7	3
Drawing and History of Painting—Drawing 18	3
Spanish—Spanish 3	3
Thesis Work	1 or 2

HOURS OF STUDY.

FRESHMAN CLASS FOR

Term	Day	Section	8-9	9-10	10-11
Fall	Mon.	I			Chemistry 1
		II			Chemistry 1
	Tues.	I	German 1	French 1	Mathematics 1
		II	German 1	French 1	Military Sci.
	Wed.	I	English 1		Chemistry 1
		II		English 1	Chemistry 1
	Thu.	I	German 1	French 1	Mathematics 1
		II	German 1	French 1	Mathematics 1
	Fri.	I	English 1	History 1 or 4	Chemistry 1
		II	English 1	English 1	Chemistry 1
	Sat.	I	German 1	French 1	Mathematics 1
		II	German 1	French 1	Mathematics 1
Winter	Mon.	I			Chemistry 2
		II			Chemistry 2
	Tues.	I	German 2	French 2	Mathematics 3
		II	German 2	French 2	Mathematics 3
	Wed.	I	English 2	History 2 or 5	Chemistry 2
		II	English 2	English 2	Chemistry 2
	Thu.	I	German 2	French 2	Mathematics 3
		II	German 2	French 2	Military Sci.
	Fri.	I	English 2		Chemistry 2
		II	English 2	English 2	Chemistry 2
	Sat.	I	German 2	French 2	Mathematics 3
		II	German 2	French 2	Mathematics 3
Spring	Mon.	I		Physics 9	Physics 1
		II		Physics 9	Horticulture 1
	Tues.	I	German 3	French 3	Botany 3
		II	German 3	Drawing 3	Drawing 3
	Wed.	I	Military Sci.	Physics 9	Physics 1
		II	English 3		Horticulture 1
	Thu.	I	German 3	French 3	Botany 3
		II	German 3	Drawing 3	Drawing 3
	Fri.	I		English 3	Physics 1
		II	Military Sci.	Physics 9	Physics 1
	Sat.	I	German 3	French 3	Botany 3
		II	German 3	Drawing 3	Botany 3

ALL FOUR YEARS' COURSES.

Day	Section	11-11.50	1.30-2.30	2.30-4
Mon.	I	Mathematics 1	Drawing 1	Drawing 1
	II		Shop-work 1	Shop-work
Tues.	I	Military Science	Drawing 1	Drawing 1
	II	Mathematics 1	Shop-work 1	Shop-work 1
Wed.	I		Mathematics 1	
	II	History 1 or 4		Mathematics 1
Thurs.	I		Shop-work 1 or	History 1 or 4
	II	Mathematics 1	Drawing 1	Drawing 1
Fri.	I		Shop-work 1	Shop-work 1
	II	Mathematics 1	Drawing 1	Drawing 1
Sat.	I			
	II	Mathematics 1		
Mon.	I	Mathematics 3	Drawing 2	Drawing 2
	II		Shop-work 2	Shop-work 2
Tues.	I		Drawing 2	Drawing 2
	II	Mathematics 3	Shop-work 2	Shop-work 2
Wed.	I		Drawing 2 or	Shop-work 2
	II	Mathematics 3	Shop-work 2 or	Drawing 2
Thurs.	I	Military Science 2	Shop-work 2 or	History 2 or 5
	II	Mathematics 3	Drawing 2	Drawing 2
Fri.	I		Shop-work 2	Shop-work 2
	II	History 2 or 5	Drawing 2	Drawing 2
Sat.	I			
	II	Mathematics 3		
Mon.	I	History 3 or 6	Mathematics 4	Mathematics 4
	II			
Tues.	I	Botany 3	Mathematics 4	Mathematics 4
	II	Drawing 3		
Wed.	I	Chemistry 3	Mathematics 4	Mathematics 4
	II			
Thurs.	I	Botany 3	Shop-work 3	Shop-work 3
	II	Drawing 3	History 3 or 6	History 3 or 6
Fri.	I	Chemistry 3	Shop-work 3	Shop-work 3
	II		History 3 or 6	History 3 or 6
Sat.	I	Botany 3		
	II	Drawing 3		

AGRICULTURE.—SOPHOMORE CLASS.

Term	Day	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
Fall....	Monday	Zoölogy 1	Zoölogy 1	Physics 10, 11, & 12	.....	Chemistry 4	Chemistry 4
	Tuesday	Agriculture 7	Botany 4	Botany 4	German 4	Chemistry 4	Chemistry 4
	Wednesday	Agriculture 7	Physics 10, 11, & 12	Military Science	.....	Chemistry 4	Chemistry 4
	Thursday	Zoölogy 1	Zoölogy 1	.....	German 4	Agriculture 7	Agriculture 7
	Friday	Botany 4	Botany 4	Horticulture 2	Horticulture 2	Zoölogy 1	Zoölogy 1
	Saturday	.....	Physics 10, 11, & 12	.....	German 4	.....	.....
Winter.	Monday	Zoölogy 2	Zoölogy 2	Physics 13	....	Chemistry 4	Chemistry 4
	Tuesday	Agriculture 8	.....	Military Science	German 5	Chemistry 4	Chemistry 4
	Wednesday	Agriculture 8	Horticulture 3	Physics 13	.....	Chemistry 4	Chemistry 4
	Thursday	Zoölogy 2	Zoölogy 2	Horticulture 3	German 5	Agriculture 8	Agriculture 8
	Friday	.....	Horticulture 3	Horticulture 3	Horticulture 3	Zoölogy 2	Zoölogy 2
	Saturday	.....	Physics 13	.....	German 5	.....	.....
Spring..	Monday	Military Science	Horticulture 2	Horticulture 2	.....	Zoölogy 3	Zoölogy 3
	Tuesday	Agriculture 9	Political Science 1	.....	German 6	Horticulture 2	Horticulture 2
	Wednesday	Agriculture 9	Political Science 1	.....	.....	Zoölogy 3	Zoölogy 3
	Thursday	.....	Political Science 1	Zoölogy 3	German 6	Agriculture 9	Agriculture 9
	Friday	.....	Political Science 1	.....	.....	Zoölogy 3	Zoölogy 3
	Saturday	.....	Political Science 1	.....	German 6	.....	.....

Term	Day	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
Fall....	Monday	Dairying 1	Dairying 1	Geology 2	Horticulture 4	Agriculture 2	Agriculture 2
	Tuesday	Dairying 1	Dairying 1	Dairying 1	Agriculture 2	Horticulture 4	Horticulture 4
	Wednesday	Chemistry 6	Dairying 1	Geology 2	Agriculture 2	Horticulture 4	Horticulture 4
	Thursday	Dairying 1	Dairying 1	Dairying 1	Dairying 1	....	Chemistry 6
	Friday	....	.....	Geology 2	Dairying 1	.....	Chemistry 6
	Saturday	Military Science	Geology 2	Geology 2	Geology 2	....	.....
Winter.	Monday	English 7	.....	....	Agriculture 11	Agriculture 3	Agriculture 3
	Tuesday	English 4	Agriculture 10	.....	Forestry 1	Agriculture 11	Chemistry 7
	Wednesday	.....	.....	Agriculture 3	Agriculture 11	Forestry 1	Forestry 1
	Thursday	English 4	Agriculture 10	.....	Forestry 1	.....	Chemistry 7
	Friday	.....	....	Agriculture 3	Agriculture 11	Agriculture 10	Agriculture 10
	Saturday	Military Science	.....	.....	Geology 1	.....	.....
Spring..	Monday	.....	Geology 1	Geology 1	Agriculture 4	Agriculture 13	....
	Tuesday	Horticulture 5	Horticulture 5	English 5	Agriculture 4	Agriculture 13	.....
	Wednesday	.....	Geology 1	Geology 1	English 7	Agriculture 13	.....
	Thursday	Agriculture 12	Horticulture 5	English 5	.....	Agriculture 4	Agriculture 4
	Friday	Agriculture 12	Geology 1	Geology 1	.....	Agriculture 13	Agriculture 13
	Saturday	Agriculture 12	Horticulture 5	Horticulture 5	Horticulture 5	.....	.....

AGRICULTURE.—SENIOR CLASS.

Term	Day	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
Fall....	Monday					*Agriculture 14	Agriculture 15
	Tuesday		Political Science 2 & 3	History 7		*Agriculture 14	Agriculture 15
	Wednesday		Political Science 2 & 3	* Forestry 2		*Agriculture 14	Agriculture 14
	Thursday		Political Science 2 & 3	History 7		* Forestry 2	* Forestry 2
	Friday	* Forestry 2		*Agriculture 14	Political Science 2 & 3	History 7	
	Saturday		Political Science 2 & 3	History 7			
Winter.	Monday			History 8			
	Tuesday		Horticulture 6	Political Science 6			*Agriculture 6
	Wednesday		*Agriculture 5	History 8			*Agriculture 6
	Thursday		Horticulture 6	Political Science 6			
	Friday		*Agriculture 5	History 8		Horticulture 6	Horticulture 6
	Saturday		*Agriculture 5	Political Science 6			
Spring..	Monday					* Horticulture 7	* Horticulture 7
	Tuesday	* Forestry 3	Agriculture 17	Meteorology 1		Agriculture 16	Agriculture 16
	Wednesday	* Horticulture 8			Agriculture 16	* Horticulture 7	* Horticulture 7
	Thursday	* Forestry 3	Agriculture 17	Meteorology 1			
	Friday	* Horticulture 8		* Horticulture 7	Agriculture 16	* Forestry 3	* Forestry 3
	Saturday		Agriculture 17	Meteorology 1			

* Elective.

Term	Day	8–9	9–10	10–11	11–11.50	1.30–2.30	2.30–4
Fall....	Monday	.....	Drawing 4	Drawing 4	Drawing 4	Chemistry 5	Chemistry 5
	Tuesday	Mathematics 5	Military Science	Physics 2 and 3	German 4	I Shop-work 4	I Shop-work 4
	Wednesday	Mathematics 5	Drawing 4	Drawing 4	Drawing 4	Chemistry 5	Chemistry 5
	Thursday	Mathematics 5	Mechanical Eng. 1	Physics 2 and 3	German 4	II Shop-work 4	Shop-work 4
	Friday	Mathematics 5	I Shop-work 4	I Shop-work 4	I Shop-work 4	II Shop-work 4	Shop-work 4
	Saturday	Mathematics 5	Mechanical Eng. 1	Physics 2 and 3	German 4	.....	.....
Winter.	Monday	.....	Drawing 5	Drawing 5	Drawing 5	Chemistry 5	Chemistry 5
	Tuesday	Mathematics 6	Mechanical Eng. 2	Physics 4 and 5	German 5	I Shop-work 5	I Shop-work 5
	Wednesday	Mathematics 6	Drawing 5	Drawing 5	Drawing 5	Chemistry 5	Chemistry
	Thursday	Mathematics 6	Mechanical Eng. 2	Physics 4 and 5	German 5	II Shop-work 5	II Shop-work 5
	Friday	Mathematics 6	I Shop-work 5	I Shop-work 5	I Shop-work 5	II Shop-work 5	II Shop-work 5
	Saturday	Mathematics 6	Military Science	Physics 4 and 5	German 5	.....	.....
Spring..	Monday	.....	.....	....	Mechanical Eng. 3	Drawing 6	Drawing 6
	Tuesday	Mathematics 7	.....	Physics 5	German 6	Drawing 6	Drawing 6
	Wednesday	Mathematics 7	Mechanical Eng. 3	.. ..	.....	Drawing 6	Drawing 6
	Thursday	Mathematics 7	Military Science	Physics 5	German 6	Drawing 6	Drawing 6
	Friday	Mathematics 7	....	.....	.....	Drawing 6	Drawing 6
	Saturday	Mathematics 7	.....	Physics 5	German 6	.....	....

ENGINEERING.—JUNIOR CLASS.

Term	Day	8–9	9–10	10–11	11–11.50	1.30–2.30	2.30–4
Fall.....	Monday	....	Electr. Engin. 1	Mech. Engin. 7	Electr. Engin. 4	Physics 6	Physics 6
	Tuesday	Drawing 7	Drawing 7	Drawing 7	Mech. Engin. 8	Physics 6	Physics 6
	Wednesday	Electr. Engin. 1	Mech. Engin. 7	.....	Electr. Engin. 4	Physics 6	Physics 6
	Thursday	Drawing 7	Drawing 7	Drawing 7	Mech. Engin. 8	Shop-work 6	Shop-work 6
	Friday	Electr. Engin. 1	Mech. Engin. 4	Mech. Engin. 8	Electr. Engin. 4	Shop-work 6	Shop-work 6
	Saturday	Military Science	Mech. Engin. 4	.....	Mech. Engin. 8	.....	.....
Winter.....	Monday	English 7	Electr. Engin. 2	Mech. Engin. 5	Electr. Engin. 5	Physics 7	Physics 7
	Tuesday	Drawing 8	Drawing 8	Drawing 8	Mech. Engin. 9	Physics 7	Physics 7
	Wednesday	Electr. Engin. 2	Mech. Engin. 5	....	Electr. Engin. 5	Physics 7	Physics 7
	Thursday	Electr. Engin. 2	Mech. Engin. 5	.....	Mech. Engin. 9	Shop-work 7	Shop-work 7
	Friday	Drawing 8	Drawing 8	Drawing 8	Electr. Engin. 5	Shop-work 7	Shop-work 7
	Saturday	Military Science	Mech. Engin. 5	.....	Mech. Engin. 9	.....	.....
Spring.....	Monday	Drawing 9	Drawing 9	Drawing 9	Electr. Engin. 6	Physics 8	Physics 8
	Tuesday	Mech. Engin. 5	Electr. Engin. 6	Mech. Engin. 10	Electr. Engin. 3	Physics 8	Physics 8
	Wednesday	Drawing 9	Drawing 9	Drawing 9	Electr. Lngin. 6	Physics 8	Physics 8
	Thursday	Mech. Engin. 5	Electr. Engin. 6	Mech. Engin. 10	Electr. Engin. 3	Shop-work 8	Shop-work 8
	Friday	Mech. Engin. 5	Electr. Engin. 6	Mech. Engin. 10	Electr. Engin. 6	Shop-work 8	Shop-work 8
	Saturday	Mech. Engin. 5	Electr. Engin. 3	Mech. Engin. 10	Military Science	....	.....

MECHANICAL ENGINEERING.—SENIOR CLASS.

Term	Day	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
Fall....	Monday	Electrical Eng. 20 and 21	Mechanical Eng. 12	Mechanical Eng. 11	.....	Shop-work 9	Shop-work 9
	Tuesday	Mechanical Eng. 11	.....	English 6	.....	.....	.....
	Wednesday	Electrical Eng. 20 and 21	Mechanical Eng. 12	Mechanical Eng. 11	.....	Drawing 10	Drawing 10
	Thursday	Mechanical Eng. 11	Mechanical Eng. 12	English 6	Electrical Eng. 20 and 21	Mech. Eng. 14	Mech. Eng. 14
	Friday	Drawing 10	Drawing 10	Drawing 10	.....	Mech. Eng. 14	Mech. Eng. 14
	Saturday	Drawing 10	Drawing 10	Drawing 10	.....	.....	.....
Winter.	Monday	.....	.....	Mechanical Eng. 20	Mechanical Eng. 17	Thesis	Thesis
	Tuesday	Mechanical Eng. 19	.....	.....	Mechanical Eng. 13	Thesis	Thesis
	Wednesday	.....	Mechanical Eng. 19	Mechanical Eng. 20	Mechanical Eng. 17	Mech. Eng. 15	Mech. Eng. 15
	Thursday	....	... .	Mechanical Eng. 19	Mechanical Eng. 13	Mech. Eng. 15	Mech. Eng. 15
	Friday	Shop-work 10	Shop-work 10	Shop-work 10	Mechanical Eng. 17	Mech. Eng. 15	Mech. Eng. 15
	Saturday	.....	Mechanical Eng. 20	Mechanical Eng. 9	Mechanical Eng. 13	.....	....
Spring..	Monday	.....	Mechanical Eng. 18	Mechanical Eng. 21	Mechanical Eng. 18	Mech. Eng. 16	Mech. Eng. 16
	Tuesday	....	Political Science 1	Thesis	Thesis	Mech. Eng. 16	Mech. Eng. 16
	Wednesday	.....	Political Science 1	Shop-work 11	Shop-work 11	Shop-work 11	Shop-work 11
	Thursday	.....	Political Science 1	....	Mechanical Eng. 21	Thesis	Thesis
	Friday	Mechanical Eng. 21	Political Science 1	.....	Mechanical Eng. 18	Thesis	Thesis
	Saturday	... .	Political Science 1	.....	... .	.....	.....

ELECTRICAL ENGINEERING.—SENIOR CLASS.

Term	Day	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
Fall....	Monday	Electrical Eng. 10, 11 and 12	Mechanical Eng. 12	Mechanical Eng. 11	French 4	Electr. Eng. 15	Electr. Eng. 15
	Tuesday	Mechanical Eng. 11	Electrical Eng. 7	.....	Electrical Eng. 7	.....	.....
	Wednesday	Electrical Eng. 10, 11 and 12	Mechanical Eng. 12	Mechanical Eng. 11	French 4	Electr. Eng. 15	Electr. Eng. 15
	Thursday	Mechanical Eng. 11	Mechanical Eng. 12	.....	Electrical Eng. 10, 11 and 12	Mech. Eng. 14	Mech. Eng. 14
	Friday	....	Electrical Eng. 7	....	French 4	Mech. Eng. 14	Mech. Eng. 14
	Saturday	.....	Electrical Eng. 7	.....	Electrical Eng. 7	.....	.....
Winter.	Monday	.....	.....	Electrical Eng. 8	Mechanical Eng. 17 or French 5	Electr. Eng. 16	Electr. Eng. 16
	Tuesday	Electrical Eng. 8	.....	.....	Electrical Eng. 14	Electr. Eng. 16	Electr. Eng. 16
	Wednesday	.....	Electrical Eng. 13	Electrical Eng. 8	Mechanical Eng. 17 or French 5	Mech. Eng. 15	Mech. Eng. 15
	Thursday	.....	Electrical Eng. 8	....	Electrical Eng. 14	Mech. Eng. 15	Mech. Eng. 15
	Friday	.....	Electrical Eng. 13	Electrical Eng. 8	Mechanical Eng. 17 or French 5	Mech. Eng. 15	Mech. Eng. 15
	Saturday	Electrical Eng. 13	... .	.....	Electrical Eng. 14	....	.....
Spring..	Monday	Electrical Eng. 13	Electrical Eng. 9	.....	Mechanical Eng. 18 or French 6	Mech. Eng. 16	Mech. Eng. 16
	Tuesday	Political Science 1	....	.....	.....	Mech. Eng. 16	Mech. Eng. 16
	Wednesday	Political Science 1	Thesis	Thesis	Mechanical Eng. 18 or French 6	Electr. Eng. 17	Electr. Eng. 17
	Thursday	Political Science 1	Thesis	Thesis	Thesis	Electr. Eng. 17	Electr. Eng. 17
	Friday	Political Science 1	....	.....	French 6	Thesis	Thesis
	Saturday	Political Science 1	Mechanical Eng. 18	.....	Electrical Eng. 9	.....	.....

TECHNICAL CHEMISTRY.—SOPHOMORE CLASS.

Term	Day	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
Fall.....	Monday	.....	Drawing 4	Drawing 4	Drawing 4	Chemistry 4	Chemistry 4
	Tuesday	Mathematics 5	.....	Physics 2 & 3	German 4	Chemistry 4	Chemistry 4
	Wednesday	Mathematics 5	Drawing 4	Drawing 4	Drawing 4	Chemistry 4	Chemistry 4
	Thursday	Mathematics 5	Military Science 6	Physics 2 & 3	German 4	Chemistry 4	Chemistry 4
	Friday	Mathematics 5	....	.....	.....	Chemistry 4	Chemistry 4
	Saturday	Mathematics 5	....	Physics 2 & 3	German 4	....	.....
Winter..	Monday	....	.....	.....	.....	Chemistry 10	Chemistry 10
	Tuesday	Mathematics 6	....	Physics 4 & 5	German 5	Chemistry 10	Chemistry 10
	Wednesday	Mathematics 6	Chemistry 10	Chemistry 10	Chemistry 10	Chemistry 10	Chemistry 10
	Thursday	Mathematics 6	Military Science 6	Physics 4 & 5	German 5	Chemistry 10	Chemistry 10
	Friday	Mathematics 6	Chemistry 10	Chemistry 10	Chemistry 10	Chemistry 10	Chemistry 10
	Saturday	Mathematics 6	.....	Physics 4 & 5	German 5	.....	.....
Spring..	Monday	.....	Geology 1	Geology 1	....	Chemistry 11	Chemistry 11
	Tuesday	Mathematics 7	... .	Physics 5	German 6	Chemistry 11	Chemistry 11
	Wednesday	Mathematics 7	Geology 1	Geology 1	.....	Chemistry 11	Chemistry 11
	Thursday	Mathematics 7	Military Science 0	Physics 5	German 6	Chemistry 8	Chemistry 8
	Friday	Mathematics 7	Geology 1	Geology 1	....	Chemistry 8	Chemistry 8
	Saturday	Mathematics 7	.....	Physics 5	German 6	.....	.....

TECHNICAL CHEMISTRY.—JUNIOR CLASS.

Term	Day	8–9	9–10	10–11	11–11.50	1.30–2.30	2.30–4
Fall.....	Monday	Military Science	Military Science	Mech. Engin. 7	French 4	Chemistry 9	Chemistry 9
	Tuesday	Chemistry 6	Chemistry 11	Chemistry 11	Chemistry 11	Chemistry 11	Chemistry 11
	Wednesday	Chemistry 6	Mech. Engin. 7	.....	French 4	Chemistry 9	Chemistry 9
	Thursday	Chemistry 11	Chemistry 11	Chemistry 11	Chemistry 11	Chemistry 11	Chemistry 11
	Friday	Chemistry 6	Mech. Engin. 4	.....	French 4	Chemistry 11	Chemistry 11
	Saturday	.....	Mech. Engin. 4	.....	.....	.....	.....
Winter.....	Monday	English 7	.....	Mech. Engin. 5	French 5	Physics 7	Physics 7
	Tuesday	Chemistry 11	Chemistry 11	Chemistry 13	.....	Physics 7	Physics 7
	Wednesday	.....	Mech. Engin. 5	.....	French 5	Physics 7	Physics 7
	Thursday	.....	Mech. Engin. 5	Chemistry 13	.....	Chemistry 11	Chemistry 11
	Friday	Chemistry 11	Chemistry 11	Chemistry 11	French 5	Chemistry 11	Chemistry 11
	Saturday	Military Science	Mech. Engin. 5	.....	.....	.....	.....
Spring.....	Monday	Chemistry 11	Chemistry 11	Chemistry 11	French 6	Physics	Physics 8
	Tuesday	Mech. Engin. 6	.....	English 5	Chemistry 14	Physics 8	Physics 8
	Wednesday	Chemistry 11	Chemistry 11	Chemistry 11	French 6	Physics 8	Physics 8
	Thursday	Mech. Engin. 6	.....	English 5	Chemistry 14	Chemistry 11	Chemistry 11
	Friday	Mech. Engin. 6	.....	.....	French 6	Chemistry 11	Chemistry 11
	Saturday	Mech. Engin. 6	.....	.....	Military Sci.	.....	.....

TECHNICAL CHEMISTRY.—SENIOR CLASS.

Term	Day	8-9	9-10	10-11	11.00-11.50	1.30-2.30	2.30-4
Fall.....	Monday	Chemistry 11 or 21	Chemistry 11 or 21	.....	Elec. Engin. 22	Chemistry 11 or 21	Chemistry 11 or 21
	Tuesday	Chemistry 11 or 21	Chemistry 11 or 21	Chemistry 11 or 21	Mech. Engin. 8	Chemistry 11 or 21	Chemistry 11 or 21
	Wednesday	Shop-work 4	Shop-work 4	Shop-work 4	Shop-work 4	Elec. Engin. 22	Elec. Engin. 22
	Thursday	Chemistry 11 or 21	Chemistry 11 or 21	Chemistry 11 or 21	Mech. Engin. 8	Chemistry 11 or 21	Chemistry 11 or 21
	Friday	.....	Chemistry 11 or 21	Chemistry 11 or 21	Elec. Engin. 22	Chemistry 11 or 21	Chemistry 11 or 21
	Saturday	.....	Chemistry 12.	....	Mech. Engin. 8	.....	....,.....
Winter..	Monday	Chemistry 20 or 21	Chemistry 20 or 21	Chemistry 20 or 21	Elec. Engin. 23	Chemistry 20 or 21	Chemistry 20 or 21
	Tuesday.	English 4	.....	.....	Chemistry 15	Chemistry 20 or 21	Chemistry 20 or 21
	Wednesday	Chemistry 20 or 21	Chemistry 20 or 21	Chemistry 20 or 21	Elec. Engin. 23	Chemistry 20 or 21	Chemistry 20 or 21
	Thursday	English 4	.....	.....	Chemistry 15	Chemistry 20 or 21	Chemistry 20 or 21
	Friday	Chemistry 20 or 21	Chemistry 20 or 21	Chemistry 20 or 21	Elec. Engin. 23	Chemistry 20 or 21	Chemistry 20 or 21
	Saturday	.....	.....	Chemistry 12	Chemistry 12	.....	... .
Spring...	Monday	Chemistry 20 or 21	Chemistry 20 or 21	Chemistry 20 or 21	Chemistry 20 or 21	Chemistry 20 or 21	Chemistry 20 or 21
	Tuesday	.....	Political Science 1	English 5	Chemistry 16	Chemistry 20 or 21	Chemistry 20 or 21
	Wednesday	.....	Political Science 1	.....	.....	Chemistry 20 or 21	Chemistry 20 or 21
	Thursday	.....	Political Science 1	English 5	Chemistry 16	Chemistry 20 or 21	Chemistry 20 or 21
	Friday	.....	Political Science 1	Chemistry 19	Chemistry 19	Chemistry 19	Chemistry 19
	Saturday	.....	Political Science 1	.....	Chemistry 12	....	.....

GENERAL COURSE—SOPHOMORE CLASS.

Term	Day	8-9	9-10	10-11	11-11.50	1.30-2.30	2.30-4
First....	Monday	Zoölogy 1	Zoölogy 1	Physics 10, 11 and 12	....	Chemistry 4 Spanish 1	Chemistry 4
	Tuesday	Mathematics 5	.....	Physics 2 and 3	German 4	Chemistry 4 Spanish 1	Chemistry 4
	Wednesday	Mathematics 5	Physics 10, 11 and 12	Military Science	History 1 or 4	Chemistry 4 Spanish 1	Chemistry 4
	Thursday	Mathematics 5	Zoölogy 1	Physics 2 and 3	German 4	History 1 or 4	History 1 or 4
	Friday	Zoölogy 1 Mathematics 5	History 1 or 4	History 1 or 4	History 1 or 4	Zoölogy 1	Zoölogy 1
	Saturday	Mathematics 5	Physics 10, 11 and 12	Physics 2 and 3	German 4	.....	.....
Second..	Monday	Zoölogy 2	Zoölogy 2	Physics 13	Philosophy 1	Chemistry 4 Spanish 2	Chemistry 4
	Tuesday	Mathematics 6	Military Science	Physics 4 & 5	German 5	Chemistry 4 Spanish 2	Chemistry 4
	Wednesday	Mathematics 6 Drawing 11	History 2 or 5 Drawing 11	Physics 13	Philosophy 1	Chemistry 4 Spanish 2	Chemistry 4
	Thursday	Mathematics 6	Zoölogy 2	Physics 4 & 5	German 5	History 2 or 5	History 2 or 5
	Friday	Mathematics 6 Drawing 11	Drawing 11	.....	History 2 or 5	Zoölogy 2	Zoölogy 2
	Saturday	Mathematics 6	Physics 13	Physics 4 & 5	German 5	.....	.....
Third....	Monday	Military Science	Drawing 12	Drawing 12	History 3 or 6	Zoölogy 3 Chemistry 10 Spanish 3	Chemistry 10 Zoölogy 3
	Tuesday	Mathematics 7	Political Science 1	Physics 5	German 6	Chemistry 10 Spanish 3	Chemistry 10 Zoölogy 3
	Wednesday	Mathematics 7	Political Science 1	Drawing 12 Philosophy 2	Drawing 12	Chemistry 10 Spanish 3	Chemistry 10 Zoölogy 3
	Thursday	Mathematics 7	Political Science 1	Zoölogy 3 Physics 5	German 6	Chemistry 10 History 3 or 6	History 3 or 6
	Friday	Mathematics 7	Political Science 1	Philosophy 2 Drawing 12	Drawing 12	History 3 or 6 Zoölogy 3	History 3 or 6 Zoölogy 3
	Saturday	Mathematics 7	Political Science 1	Physics 5	German 6	.....	.....

GENERAL COURSE.—JUNIOR CLASS.

Term	Day	8–9	9–10	10–11	11–11.50	1.30–2.30	2.30–4
First. ..	Monday	.....	....	Geology 2	French 4	Chemistry 4 or 10 Spanish 1	Chemistry 4 or 10 Physics 6
	Tuesday	Drawing 13 Chemistry 6	Drawing 13	History 7	Philosophy 3	Chemistry 4 or 10 Spanish 1	Chemistry 4 or 10 Physics 6
	Wednesday	Chemistry 6	Mathematics 8	Geology 2	French 4	Chemistry 4 or 10 Spanish 1	Chemistry 4 or 10 Physics 6
	Thursday	Military Science 2	.....	History 7	Philosophy	Drawing 13	Drawing 13
	Friday	Drawing 13 Chemistry 6	Drawing 13 Mathematics 8	Geology 2 History 7	French 4 Philosophy 3	History 7	History 7
	Saturday	.....	Geology 2	Geology 2	Geology 2	.....	.....
Second..	Monday	English 7	.....	History 8	French 5	Chemistry 4 or 11 Spanish 2	Chemistry 4 or 11 Physics 7
	Tuesday	English 4	Philosophy 4	Political Science 4 or 6	.....	Chemistry 4 or 11 Spanish 2	Chemistry 4 or 11 Physics 7
	Wednesday	Chemistry 7	Mathematics 9	History 8	French 5	Chemistry 4 or 11 Spanish 2	Chemistry 4 or 11 Physics 7
	Thursday	English 4	Philosophy 4	Political Science 4 or 6	... .	Drawing 14	Drawing 14
	Friday	Chemistry 7	Mathematics 9	History 8	French 5	Drawing 14	Drawing 14
	Saturday	Military Science	Philosophy 4	Political Science 4 or 6	English 4	.....	.....
Third....	Monday	.....	Geology 1	Geology 1	French 6	Chemistry 10 or 11 Spanish 3	Chemistry 10 or 11 Physics 8
	Tuesday	Philosophy 5 or 6	Military Science	English 5	Political Science 5 or 7	Chemistry 10 or 11 Spanish 3	Chemistry 10 or 11 Physics 8
	Wednesday	History 9	Geology 1	Geology 1	French 6	Chemistry 10 or 11 Spanish 3	Chemistry 10 or 11 Physics 8
	Thursday	Philosophy 5 or 6	.....	English 5	Political Science 5 or 7	Drawing 15	Drawing 15
	Friday	History 9	Geology 1	Geology 1	French 6	Drawing 15	Drawing 15
	Saturday	Philosophy 5 or 6	Drawing 15	Drawing 15	Political Science 5 or 7	....	....

GENERAL COURSE.—

Term	Day	8-9	9-10	10-11
Fall	Monday			French 7
	Tuesday		Political Sci. 2 & 3	English 6
	Wednesday	German 7	Political Sci. 2 & 3	French 7
	Thursday		Political Sci. 2 & 3	English 6
	Friday	German 7		French 7
	Saturday		Political Sci. 2 & 3	
Winter..	Monday		Mathematics 6	French 8
	Tuesday		Philosophy 4	Political Sci 4 or 6
	Wednesday	German 8	Mathematics 10	French 8
	Thursday		Philosophy 4	Political Sci. 4 or 6
	Friday	German 8	Mathematics 10	French 8
	Saturday		Philosophy 4	Political Sci. 4 or 6
Spring..	Monday		Mathematics 11	French 9
	Tuesday	Philosophy 5 or 6		Meteorology 1
	Wednesday	German 9	Mathematics 11	French 9
	Thursday	Philosophy 5 or 6		Meteorology 1
	Friday	German 9	Mathematics 11	French 9
	Saturday	Philosophy 5 or 6		Meteorology 1

SENIOR CLASS.

Day	11–11.50	1.30–2.30	2.30–4
Monday		Drawing 16	Drawing 16
		Botany 5	Botany 5
		Zoölogy 11	Zoölogy 4
		Chemistry 10 or 11	Chemistry 10 or 11
		Spanish 1	
Tuesday	Philosophy 3	Drawing 16	Drawing 16
		Botany 5	Botany 5
		Zoölogy 11	Zoölogy 4
		Chemistry 10 or 11	Chemistry 10 or 11
		Spanish 1	
Wednesday		Drawing 16	Drawing 16
		Botany 5	Botany 5
		Zoölogy 11	Zoölogy 4
		Chemistry 10 or 11	Chemistry 10 or 11
		Spanish 1	
Thursday	Philosophy 3	Zoölogy 11	Zoölogy 4
Friday	Political Science 2 or 3		
Saturday	Philosophy 3		
Monday		Chemistry 11	Chemistry 11
		Zoölogy 12	Zoölogy 12
		Botany 6	Botany 6
		Drawing 17	Drawing 17
		Spanish 2	
Tuesday	English 8	Chemistry 11	Chemistry 11
		Zoölogy 12	Zoölogy 12
		Botany 6	Botany 6
		Drawing 17	Drawing 17
		Spanish 2	
Wednesday		Chemistry 11	Chemistry 11
		Zoölogy 12	Zoölogy 12
		Botany 6	Botany 6
		Drawing 17	Drawing 17
		Spanish 2	
Thursday	English 8		
Friday			Mathematics 6
Saturday	English 8		
Monday		Chemistry 11	Chemistry 11
		Zoölogy 13	Zoölogy 13
		Botany 7	Botany 7
		Drawing 18	Drawing 18
		Spanish 3	
Tuesday	Political Science 5 or 7	English 9	English 9
		Spanish 3	
Wednesday	English 9	Chemistry 11	Chemistry 11
		Zoölogy 13	Zoölogy 13
		Botany 7	Botany 7
		Drawing 18	Drawing 18
		Spanish 3	
Thursday	Political Science 5 or 7		
Friday	English 9	Chemistry 11	Chemistry 11
		Zoölogy 13	Zoölogy 13
		Botany 7	Botany 7
		Drawing 18	Drawing 18
Saturday	Political Science 5 or 7		

TWO YEARS' COURSE IN AGRICULTURE.

This course was established by the legislature in 1895. Its aim is to provide an opportunity for those students whose circumstances are such that it would be impossible for them to take a four years' collegiate course in agriculture, but yet who are anxious and would be greatly benefited by taking a less extended training for their life work.

The course is especially desirable for the young, bright boys of the farm who expect to make a business of some line of agricultural or horticultural work. The course of study is in part the same as that which the students of the long course take. As thorough instruction is given in agronomy, animal industry, dairying, horticulture, forestry, economic entomology, botany, and the underlying sciences as the time will permit. The second year contains optional work, so that it is possible for students to specialize in horticulture, animal industry, or dairying.

Ten hours per week on the average are spent in practical work upon the farm, in the barn, greenhouses, or shops.

The course is open to "students who can pass a fair and reasonable examination in reading, spelling, writing, arithmetic, English grammar, geography, and history of the United States."

No degree is given on the completion of this course, but a certificate is issued stating fully the work done.

COURSE OF STUDY FOR FIRST YEAR OF TWO-YEAR COURSE.

FALL TERM.

	Exercises per week.
Mathematics 12	3
English 11 and 1	5
Botany 1	3

	Exercises per week.
Horticulture 1	3
Agriculture 1	3
Agriculture 18	3
Military Science	1

WINTER TERM.

Mathematics 13	3
English 2	2
Shop Work 12	3
Chemistry	3
Botany 2	2
Horticulture 3	3
Military Science	1

SPRING TERM.

Shop Work 13	3
English 3	1
Physics 14	3
Botany 3	3
Dairying 1	5
Military Science	1

COURSE OF STUDY FOR SECOND YEAR OF TWO-YEAR COURSE.

FALL TERM.

	Exercises per week.
Zoölogy 1	3
Botany 4	2
Horticulture 2	1
Horticulture 4	3
Physics 15	3
Agriculture 7	3
Agriculture 2	3
Military Science	1

WINTER TERM.

Zoölogy 2	3
Agriculture 3	3
Agriculture 5	3
Agriculture 8	3
Forestry 1	3
Agriculture 11	4
Military Science	1

SPRING TERM.

	Exercises per week.
Zoölogy 3	4
Horticulture 2	2
Horticulture 5	3
Agriculture 12	3
Agriculture 4	3
Agriculture 13	4
Military Science	1

SCHEDULE OF HOURS FOR TWO-YEAR COURSE.

FIRST YEAR—FALL TERM.

Day	8-9	9-10	10-11	11-12	1.30–2.30	2.30-4
Monday		Mathematics 12		Agriculture 18	Horticulture 1	Horticulture 1
Tuesday	English 11	Mathematics 12	Military Science	Agriculture 18	Botany 1	Botany 1
Wednesday	English 1	Agriculture 1		Horticulture 1	Botany 1	Botany 1
Thursday	English 11		Agriculture 1	Horticulture 1	Botany 1	Botany 1
Friday	English 1	Mathematics 12	Agriculture 1	Agriculture 1	Agriculture 18	Agriculture 18
Saturday	English 11					

WINTER TERM.

Monday		Horticulture 3	Horticulture 3	Horticulture 3	Botany 2	Botany 2
Tuesday		Chemistry		Mathematics 13	Botany 2	Botany 2
Wednesday	English 2	Horticulture 3		Mathematics 13	Shop-work 12	Shop-work 12
Thursday		Chemistry	Military Science	Mathematics 13	Shop-work 12	Shop-work 12
Friday	English 2	Horticulture 3	Horticulture 3	Horticulture 3	Shop-work 12	Shop-work 12
Saturday		Chemistry				

SPRING TERM.

Monday	Dairy 1	Dairy 1	Dairy 1	Physics 14	Shop-work 13	Shop-work 13
Tuesday	Dairy 1	Dairy 1	Botany 3	Botany 3		
Wednesday	Dairy 1	Dairy 1	Dairy 1	Physics 14	Shop-work 13	Shop-work 13
Thursday	Dairy 1	Dairy 1	Botany 3	Botany 3		
Friday	Military Science	English 3		Physics 14	Shop-work 13	Shop-work 13
Saturday	Dairy 1	Dairy 1	Botany 3	Botany 3		

SCHEDULE OF HOURS FOR TWO-YEAR COURSE.

SECOND YEAR.—FALL TERM.

Day	8-9	9-10	10-11	11-12	1.30-2.30	2.30-4
Monday	Zoölogy 1	Zoölogy 1	Physics 15	Horticulture 4	Agriculture 2	Agriculture 2
Tuesday	Agriculture 7	Botany 4	Botany 4	Agriculture 2	Horticulture 4	Horticulture 4
Wednesday	Agriculture 7	Physics 15	Military Science	Agriculture 2	Horticulture 4	Horticulture 4
Thursday	Zoölogy 1	Zoölogy 1		Physics 15	Agriculture 7	Agriculture 7
Friday	Botany 4	Botany 4	Horticulture 2	Horticulture 2	Zoölogy 1	Zoölogy 1
Saturday						

WINTER TERM.

Monday	Zoölogy 2	Zoölogy 2		Agriculture 11	Agriculture 3	Agriculture 3
Tuesday	Agriculture 8		Military Science	Forestry 1	Agriculture 11	
Wednesday	Agriculture 8	Agriculture 5	Agriculture 3	Agriculture 11	Forestry 1	Forestry 1
Thursday	Zoölogy 2	Zoölogy 2		Forestry 1	Agriculture 8	Agriculture 8
Friday		Agriculture 5	Agriculture 3	Agriculture 11	Zoölogy 2	Zoölogy 2
Saturday		Agriculture 5				

SPRING TERM.

Monday	Military Science	Horticulture 2	Horticulture 2	Agriculture 4	Zoölogy 3	Zoölogy 3
Tuesday	Horticulture 5	Horticulture 5	Agriculture 13	Agriculture 4	Horticulture 2	Horticulture 2
Wednesday			Agriculture 13		Zoölogy 3	Zoölogy 3
Thursday	Agriculture 12	Horticulture 5	Zoölogy 3	Agriculture 13	Agriculture 4	Agriculture 4
Friday	Agriculture 12		Agriculture 13	Agriculture 13	Zoölogy 3	Zoölogy 3
Saturday	Agriculture 12	Horticulture 5	Horticulture 5	Horticulture 5		

TEN WEEKS' COURSE IN AGRICULTURE.

The college offers a Winter Course in Agriculture, beginning Tuesday, January 10, and continuing until Friday, March 17, 1905.

No entrance examinations are required, but students taking the course must possess a good common school education. The course is especially desirable for students of mature years.

The courses of study offered are dairying, stock-feeding, principles of breeding, breeds of sheep and swine, wood-working, soil physics, greenhouse management, forestry, botany, and entomology, together with practical work in the creamery, work-shop, and greenhouses.

A fee of five dollars will be charged for tuition.

The expenses of the course may be estimated as follows:

Room and board, ten weeks, at $4 . .	$40.00
Tuition fee	5.00
Books	5.00
Total	$50.00

Applicants should report at the president's office, Thompson Hall, on Tuesday, January 10, 1905.

TEN WEEKS' COURSE IN DAIRYING OR DAIRY SCHOOL.

The tenth annual Dairy School of the New Hampshire College of Agriculture and the Mechanic Arts will open on Tuesday, January 10, and continue ten weeks, closing on March 22. The object of this school is to furnish a broad and substantial foundation for those who would become successful creamery managers or dairy farmers. In other words, it offers a short route to a successful career that must otherwise require years of experience to attain. The subjects taught have a practical bearing on the every-day affairs connected with the various branches of the dairy industry.

TUITION, EXPENSES, ETC.

There is no age limit for students, and no entrance examination is required. A tuition fee of five dollars is payable at the beginning of the term; other expenses, including books, room, and board for ten weeks will amount to approximately sixty dollars.

Owing to the limited space for class work in the dairy building, the number of students must necessarily be limited to the twelve men who first make application for admission.

A detailed description of the studies offered is here given.

Students completing the required work of the Dairy School and passing satisfactory examinations in all subjects will be given a certificate.

For further information address:

New Hampshire College of Agriculture and the Mechanic Arts, Durham, N. H.

DAIRY BUILDING AND EQUIPMENT.

The dairy building is a wooden structure of one and one half stories with basement. It is divided into rooms for testing, separating, and churning. There is also an engine room and an office for the dairy instructor.

All available space is occupied by the various forms of separators, milk testers, milk coolers, churns, butter-workers, etc. Dairy students will be taught to use the United States, DeLaval, Empire, Sharples, and other cream separators. The latest apparatus for pasteurizing milk and cream, and the more modern churns and butter-workers will be available for students' use. An ice-cream plant has recenty been installed. The most approved appliances for milk testing form a part of the regular equipment. Steam power is supplied by the large boilers at the power house. In addition to the product of the college herd, milk and cream are received from about thirty farms in Durham and vicinity. Through this arrangement the college furnishes plenty of milk for practice work, and provides for a complete and practical training in creamery and dairy management.

MILK AND ITS PRODUCTS.

Instructor Ivan C. Weld.

Lectures and recitations on the secretion, nature, and composition of milk, its uses and value as an article of food. It also deals with causes and conditions influencing the quality of milk and the care of milk on the farm.

Class-room work is supplemented by daily practice in the creamery. The student is trained to perform all parts of the work and to thoroughly understand the details that make possible the production of fine butter.

Instruction in ice-cream making will include the selection of cream, its preparation for freezing, the selection and preparation of flavors, the packing for shipment, the making of ice-cream bricks, and a consideration of the various influences affecting quality, yield, etc.

DAIRY MECHANICS.

Instructor Ivan C. Weld.

Lectures will be given on the construction, operation, and care of the various appliances used in the dairy or creamery. Each student will be required to take apart and assemble the various machines, operate them carefully and efficiently, and present a written description of each machine and the result of his investigations with special reference to capacity, speed, and outfit, and to perform other duties required of creamery and dairy managers.

MILK TESTING.

Instructor Ivan C. Weld.

The use of the Babcock test in apportioning the money value of milk is now regulated by state law, and the value of the test in the successful management of the dairy herd has created a demand for practical training. The course will include lectures and recitations on the history and principles of the Babcock test and its application on the dairy farm and in the creamery or milk inspector's laboratory. A careful study of all its details will be required. Under the guidance of the instructor the student will practice testing milk, cream, skim-milk, and buttermilk until fully competent to perform the work for himself or for others. In connection with the lactometer the test will be made the subject of practice in estimating the solids of milk.

CHEMISTRY OF MILK AND BUTTER.

Professor Fred W. Morse.

The subject is taken up in a course of ten lectures, illustrated by experiments and specimens, and includes the properties and separation of the different constituents of milk, fat, casein, albumen, sugar, etc., the composition of butter and butter-fat, and the properties and effects of preservatives.

DAIRY BACTERIOLOGY.

Instructor Ivan C. Weld.

Lectures, recitations, and demonstrations, covering the more important facts in the relation of bacteria to dairying, with instruction and practice in pasteurizing milk and cream for market or butter making and in preparing and using cultures in ripening cream.

CREAMERY AND DAIRY MANAGEMENT.

Instructor Ivan C. Weld.

Students are taught the method of keeping creamery and dairy accounts, and will be required to present sample accounts covering a period of one month. Plans of dairy buildings and creameries will also be required, with estimates for building and equipment.

BOILERS AND ENGINES.

Instructor E. H. Hancock.

Lectures will be given on the construction, operation, and care of boilers, motors, steam, and gasoline engines. The lectures will be followed by practical demonstrations and practice in the management of the various motive powers.

INSECTS AFFECTING CATTLE.

Professor E. Dwight Sanderson.

Lectures on the horn-fly, warble-fly, cattle lice, and similar pests, with especial reference to their life histories and methods of combating them.

BREEDS AND BREEDING.

Assistant Professor E. L. Shaw.

Lectures and recitations upon the origin, history, distribution, characteristics, adaptability, and standard of excellence of the pedigreed breeds of dairy cattle, with special reference to the selection of breeds and individual animals for the dairy herd.

Lectures and recitations upon the principles of breeding

as exhibited through the laws of heredity, variation, and selection; methods of breeding, including a discussion of in-breeding, cross-breeding, and influence of environment.

Practice in judging the dairy breeds.

FEEDS AND FEEDING.

Assistant Professor E. L. Shaw.

Lectures and recitations upon the composition and digestibility of feeding stuffs; the preservation and preparation of coarse fodders, ensilage; grinding, steaming, and cooking food. A careful study of the different feeds upon the market and their value in a dairy feeding ration. Practice will be given in computing and compounding rations for the dairy cow.

DISEASES OF CATTLE.

Assistant Professor E. L. Shaw.

Lectures and recitations upon the anatomy of the cow, with special reference to the digestive, reproductive, and milk-producing organs, the common diseases, the causes, and the methods of treatment.

AGRICULTURAL EXPERIMENT STATION.

This department of the college is provided for by the National Government, at an annual expense of fifteen thousand dollars.

The Act of Congress provides,—

"That it shall be the object and duty of said Experiment Stations to conduct original researches or verify experiments on the physiology of plants and animals; the diseases to which they are severally subject, with the remedies for the same; the chemical composition of useful plants at their different stages of growth; the comparative advantages of rotative cropping, as pursued under a varying series of crops; the capacity of new plants or trees for acclimation; the chemical composition of manures, natural or artificial, with experiments designed to test their comparative effects on crops of different kinds; the adaptation and value of grasses and forage plants; the composition and digestibility of the different kinds of food for domestic animals; the scientific and economic questions involved in the production of butter and cheese; and such other researches or experiments bearing directly on the agricultural industry of the United States as may in each case be deemed advisable, having due regard to the varying conditions and needs of the respective states and territories."

COMMENCEMENT, 1904.

On Commencement Day, June 4, 1904, the following degrees were conferred:

BACHELORS OF SCIENCE.

IN AGRICULTURE.

Leander Ashton, Pittsfield.
Percy Anderson Campbell, Litchfield.
Carrol Winfred Farr, North Weare.
Joseph Ezra Goodrich, New Durham.
Arthur Ronello Merrill, North Bridgton, Me.

IN MECHANICAL ENGINEERING.

George Herbert Hill, La Crosse, Wisconsin.
Thomas Jefferson Laton, Nashua.
Samuel Ambrose Richardson, Charlestown.

IN ELECTRICAL ENGINEERING.

Walter Allen Barker, Pittsfield.
Raymond Louis Lunt, Dover.

UNCLASSIFIED.

Edgar Charles Bickford, Durham.

HONORARY DEGREES.

The degree of M. Sc. was conferred upon—

Hon. George A. Wason, trustee 1883-1904; President of the Board of Trustees, 1897-1904.

And upon the following ex-trustees of the college:

Frederick P. Comings, B. S., Tacoma, Washington, alumni trustee, 1893-1903.

Albert DeMeritt, Esq., Durham, N. H., trustee 1892-1895.

Certificates.

Certificates from the Two Years' Course in Agriculture were awarded to—

Erland Graves Batchelder, Wilton.
Wesley Pillsbury Flint, Newburyport, Mass.
Henry Marston Shurbert, Northwood Ridge.

PRIZE RECORD FOR 1904.

SMYTH PRIZES.

Given by Mrs. Marian C. Smyth.

Speaking:—

1st, $20. Harry U. Russell, '05. 2d, $15, Castine C. Swanson, '05. 3d, $10, Warren C. Hayes, '05.

Reading:—

1st, $15, Neil S. Franklin, '06. 2d, $10, Wm. S. Gooch, '07.

BAILEY PRIZE — $10.

Given by Dr. C. H. Bailey of the Class of '79, and E. A. Bailey of the Class of '85.

Raymond Louis Lunt.

ERSKINE MASON MEMORIAL PRIZE.

Leander Ashton.

SENIOR STANDING HIGHEST IN THE MILITARY DEPARTMENT.

Thomas J. Laton.

WINNER OF INDIVIDUAL PRIZE DRILL.

W. E. Murchie, '07.

HONORABLE MENTION.

Andrew Broggini, '07.

PRIZE SWORD—EXCELLENCE IN DRILL.

J. W. Moreton, '05.

Valentine Smith Scholarships are held by

William O. Robinson, '05.
John D. Clark, '06.
J. Glenn Powers, '07.
W. W. Kirkpatrick, '08.

ROSTER OF BATTALION.

For 1904 - 1905.

Major and Acting Commandant Elmer S. Savage.

Company A.

Capt. C. O. Dodge.
1st Lieut. F. H. Heath.
2d Lieut. W. C. Campbell.

Sergeants.

1st Sergt. N. S. Franklin.
Sergt. E. J. Roberts.
Sergt. L. K. Barnes.
Sergt. C. S. Batchelder.
Sergt. R. E. Gowen.

Corporals.

A. G. Weeks.
F. W. Randall.
A. Broggini.
B. C. Abbott.
L. D. Batchelor.

Musician.

P. R. Berry.

Company B.

Capt. J. W. Moreton.
1st Lieut. H. U. Russell.
2d Lieut. M. A. Pike.

Sergeants.

1st Sergt. E. L. Converse.
Sergt. A. M. Johnson.
Sergt. W. C. Small.
Sergt. R. V. Swain.
Sergt. W. E. Murchie.

Corporals.

J. G. Powers.
F. D. Lane.
A. L. Smith.
J. H. Priest.
C. A. Dodge.

Musician.

M. G. Buss.

STUDENTS.

a—Agricultural Course; *c*—Course in Technical Chemistry; *g*—General Course; *m e*—Mechanical Engineering; *e e*—Electrical Engineering; *u*—Unclassified. Sophomores in the Engineering Courses are designated by *e* only. Freshmen are not classified in courses.

SENIORS.

Name.	Residence.	Room.
Chesley, John Henry *e e*	*Rockingham.*	Kappa Sigma House.
Dodge, Cleon Orestes *c*	*Sunapee.*	Mrs. Sanders'.
Hayden, Silas Bryden *u*	*So. Natick, Mass.*	Kappa Sigma House.
Hayes, Harry Linwood *ee*	*Exeter.*	Exeter.
Hayes, Warren Chauncey *u*	*Durham.*	Mr. Hayes'.
Heath, Fred Harvey *c*	*Warner.*	Prof. Scott's.
Knight, Harold Nims *a*	*Marlborough.*	Mr. Schoonmaker's.
Mudgett, Orlo Dudley *e e*	*Gilmanton.*	Zeta House.
Pettee, Horace James *e*	*Durham.*	Prof. Pettee's.
Pike, Mahlon Arthur *u*	*Dover.*	Miss Berry's.
Putney, Fred Silver *a*	*Hopkinton.*	Prof. Scott's.
Randall, John Leslie *a*	*Lee.*	Lee.
Robinson, William Orrin *c*	*Marlborough.*	Pettee's Block.
Russell, Harry Union *g*	*West Derry.*	Miss Berry's.
Savage, Elmer Seth *a*	*Lancaster.*	Kappa Sigma House.
Swanson, Castine Caroline *g*	*Cambridge, Mass.*	Prof. Sanderson's.

JUNIORS.

Adams, Samuel Taylor *e e*	*Pittsfield.*	Zeta House.
Barnes, Stuart Kendrick *c*	*Walpole.*	Pettee's Block.
Batchelder, Charles S. *a*	*So. Hampton.*	Nesmith Hall.
Campbell, Willis Cassius *c*	*West Windham.*	Kappa Sigma House.
Clark, John Dustin *g*	*Nashua.*	Kappa Sigma House.
Converse, Ernest Luther *g*	*Amherst.*	Mr. Sawyer's.
Franklin, Neil Starr *e e*	*Bernardston, Mass.*	Kappa Sigma House.
Gooch, William Safford *e e*	*Exeter.*	Exeter.
Gowen, Ralph Edward *m e*	*Stratham.*	The Mystic.
Moreton, Joseph Wesley *e e*	*Medford, Mass.*	Zeta House.
Roberts, Edwin Jay *c*	*Laconia.*	Dr. Grant's.

Name.	Residence.	Room.
Small, William Clifford, Jr., *m e*	*Nashua.*	Kappa Sigma House.
Swain, Roy Vance *m e*	*Barrington.*	Mrs. Sanders'.
Tinkham, Frank Alvin *a*	*Grafton.*	Prof. Parsons'.

SOPHOMORES.

Abbott, Burt Carleton *a*	*Tilton.*	Thompson Hall.
Batchelor, Leon Dexter *a*	*West Upton, Mass.*	Kappa Sigma House.
Berry, Philip Ray *e*	*Alton.*	Miss Berry's.
Broggini, Andrew *e*	*Concord.*	Mr. Schoonmaker's.
Campbell, Samuel Francis *a*	*West Windham.*	Kappa Sigma House.
Clement, Clarence Elbert *a*	*Derry.*	Mr. Meserve's.
Dickey, Harold Hurst *g*	*Manchester.*	Kappa Sigma House.
Dodge, Carl Austin *c*	*New Boston.*	Kappa Sigma House.
Fuller, Carl Tilson *c*	*Nashua.*	Zeta House.
Handy, Waylon Lester *a*	*Swanzey.*	Zeta House.
Hardy, Edwin Davis *m e*	*Nashua.*	Zeta House.
Ingham, Harry Edward *e*	*Nashua.*	Kappa Sigma House.
Jenness, Cyrus Fremont *a*	*Gonic.*	Kappa Sigma House.
Johnson, Allen Montague *e*	*Nashua.*	Zeta House.
Lane, Frank Davis *e*	*Manchester.*	Kappa Sigma House.
Littlefield, Ralph Albion *a*	*Portsmouth.*	Mrs. H. Mathes'.
Mooar, Mary Louisa *g*	*Manchester.*	Miss Berry's.
Murchie, William Ewart *e*	*Concord.*	Kappa Sigma House.
Noyes, Bernard C. *a*	*Landaff.*	Thompson Hall.
Powers, John Glenn *a*	*Concord.*	Mr. Schoonmaker's.
Purrington, Wallace Fuller *c*	*So. Yarmouth, Mass.*	Zeta House.
Randall, Frank Wiggin *e*	*Portsmouth.*	Mr. Wentworth's.
Smith, Arthur Leon *e*	*Portsmouth.*	Pettee's Block.
Snow, Ezra David *e*	*Whitefield.*	Pettee's Block.
Stockwell, Franklin Emmons *a*	*Lancaster.*	Zeta House.
Townsend, Ellice Storrs *g*	*Lebanon.*	Miss Berry's.
Tuttle, Charles Leo	*Exeter.*	Exeter.
Watson, Lucia Soule *g*	*Durham.*	Mr. D. W. Watson's.
Woodward, Arthur Jason *e*	*Lancaster.*	Pettee's Block.

FRESHMEN.

Allen, Lloyd Jay	*Tilton.*	Zeta House.
Atwell, Robert King	*Portsmouth.*	The Mystic.
Bailey, Emery Ward	*Suncook.*	Mr. Schoonmaker's.
Barton, Arthur Hosea	*Newport.*	The Mystic.
Batchelder, Arthur Milliken	*Suncook.*	Zeta House.

Name.	Residence.	Room.
Batchelder, Henry Edward	*Exeter.*	Exeter.
Beecher, Henry Ward	*New Salem, Mass.*	The Mystic.
Belleville, William Edward *a*	*Hinsdale.*	Zeta House.
Buss, Minot Giles	*Wilton.*	Mr. Schoonmaker's.
Carlisle, Lawrence Andrew	*Exeter.*	Exeter.
Cash, James Dennis	*Massabesic.*	The Mystic.
Chase, Fred Odell	*Warner.*	Pettee's Block.
Chesley, Mary Abbie	*Lee.*	Lee.
Chesley, Wilbur Lemuel	*Farmington.*	Mr. Wentworth's.
Clough, Francis	*Contoocook.*	Mr. Schoonmaker's.
Cone, Charles Francis	*Nashua.*	Zeta House.
Converse, Albert William	*Amherst.*	Mr. Sawyer's.
Croghan, John Timothy	*Concord.*	Mr. Schoonmaker's.
DeMeritt, Katharine	*Durham.*	Mr. Albert Demeritt's.
Evans, Walter Woods	*East Kingston.*	East Kingston.
Farwell, Oren Lovell	*Harrisville.*	Zeta House.
Fellows, Ernest Roslyn	*Exeter.*	Exeter.
French, Harry Fifield	*Plymouth.*	Mr. Edgerly's.
Gardner, Frederick Alberto	*Tilton.*	Zeta House.
Goodsoe, Paul Wesley	*Stratham.*	The Mystic.
Harrington, Annie Roberta	*Goffstown.*	Miss Berry's.
Hill, Stanley Fisk	*Nashua.*	Pettee's Block.
Howland, George Raymond	*Woodsville.*	Mr. Sawyer's.
Huse, Merritt Chase	*Concord.*	Mr. Schoonmaker's.
Jack, Charles Harrison	*Manchester.*	Mr. Chesley's.
Jeffers, Omer Smith	*Whitefield.*	Pettee's Block.
Kirkpatrick, William R.	*Nashua.*	Mr. Wentworth's.
Leonard, Thomas James	*Lancaster.*	Mr. Sawyer's.
Marshall, George Harnden	*Lancaster.*	Mr. Sawyer's.
Matthews, Charles Doane	*Portsmouth.*	Mr. Burnham's.
Neville, George Duncan	*New Boston.*	Mr. Schoonmaker's.
Nichols, Ernest Chase	*Hillsboro Bridge.*	
O'Connor, John Joseph	*Portsmouth.*	Pettee's Block.
O'Grady, Augustus Michael	*Nashua.*	Zeta House.
Page, John Caleb	*Dover.*	Dover.
Parker, William Brackett	*Portsmouth.*	Mr. Burnham's.
Perley, George Arthur	*Goffstown.*	Prof. Pettee's.
Pettee, Sarah Elizabeth	*Durham.*	Prof. Pettee's.
Plummer, Carl Stevens	*Manchester.*	Kappa Sigma House.
Powers, Leon Tyler	*Tilton.*	Zeta House.
Smalley, Dean Fred	*Walpole.*	Pettee's Block.
Smith, Arthur Watts	*Hudson.*	Mr. Wentworth's.
Spooner, William Alfred	*New Salem, Mass.*	Mr. George DeMeritt's.
Springfield, Eugene	*Rochester.*	Mr. Stevens'.

Name.	Residence.	Room.
Stevens, Frederick Caverly	*Suncook.*	Pettee's Block.
Tarbell, Carl Brown	*Milton.*	Mr. Chesley's.
Thompson, Roscoe Leroy	*West Swanzey.*	The Mystic.
Wadleigh, Ray Emery	*Kensington.*	Mr. Chesley's.
Waite, George Lyman	*Dunbarton.*	Zeta House.
Walker, Harold Duncan	*Kittery, Me.*	Pettee's Block.
Webster, Walter Everett	*Kingston.*	Kingston.
Weeks, Albion G.	*Rochester.*	The Mystic.
Woodbury, James Lufkin	*Francestown.*	Brook Cottage.
Woodman, Francis Ward	*Milford.*	Mr. Burnham's.

TWO YEARS' COURSE.

Second Year.

Barney, Grover Lafayette	*Grafton.*	Mr. Stevens'.
Dunn, Arthur Garfield	*Harrisville.*	Zeta House.
Edmunds, Fred Sanborn Cleveland	*Chichester.*	Mr. Wentworth's.
Frost, Henry Walter	*Dublin.*	Pettee's Block.
Gowing, Henry Newton	*Dublin.*	Pettee's Block.
Price, Amos Richardson	*Gilmanton Iron Works.*	Zeta House.

First Year.

Anderson, Edwin Hazelton	*Chester.*	Mr. Bickford's.
Bartlett, Edmund Morrill	*Salisbury, Mass.*	Mr. Burnham's.
Coburn, Frank Milton	*Manchester.*	Mr. Chesley's.
Dimond, Oliver Carter	*West Concord.*	Mr. Edgerly's.
Forristall, Ralph Wayne	*Alstead.*	Pettee's Block.
Grimes, Frank Alfred	*Francestown.*	Brook Cottage.
Hargreaves, Stanley	*Durham.*	Mrs. Berry's.
Huckins, George Edwin	*New Hampton.*	Mr. S. Jenkins'.
Knowles, Charles Walker	*Gilmanton.*	Zeta House.
Lindquest, Eno Alexander	*No. Charlestown.*	Mr. L. Bunker's.
Locke, Elmer Walker	*Deering.*	Mrs. Berry's.
Norton, Percy Francis	*North Hampton.*	The Mystic.
Sanborn, Carl Jeremiah	*Pittsfield.*	
Sawyer, Robert Stanley	*Walpole.*	Pettee's Block.
Shuttleworth, Edwin Lewis	*Methuen, Mass.*	Pettee's Block.
Smith, Chellis Vielle	*Deerfield Centre.*	Mrs. Berry's.
Thompson, Frank Allen	*Pittsfield.*	The Mystic.
Wilson, John Spangler	*Deerfield.*	Mrs. Berry's.

SPECIAL COURSE.

Name.	Residence.	Room.
Adams, Waldo Lawrence	*Townsend, Mass.*	Mrs. Sanders'.
Carpenter, Harry W.	*Amherst.*	Mr. Sawyer's.
Flint, Wesley Pillsbury	*Newburyport, Mass.*	Zeta House.
Fowler, Clarence	*Durham.*	Mr. C. Fowler's.
Priest, James Harry	*Manchester.*	Mrs. J. Thompson's.

TEN WEEKS' COURSE.

Agriculture.

Name.	Residence.
Jewett, Charles Lyman	*Middlebury, Vt.*

Dairying.

Name.	Residence.
Carter, Orson	*Hillsboro Bridge.*
Gunn, Arthur Elisha	*Keene.*
Howe, Ernest Leavitt	*East Barnard, Vt.*
Jewett, Alden Henry	*West Lynn, Mass.*
Lamothe, William G.	*Newfields.*
Murch, Ralph Herbert	*West Lebanon.*
Pike, George H.	*Hinsdale.*
Stevens, George Albert	*Lisbon.*
Taylor, Arthur Wilmer	*East Andover.*

SPECIAL SHORT COURSE.

Name.	Residence.	Study.
Meader, Dana William	*Rochester.*	Horticulture.
Rowse, George William, Jr.	*Montgomery, Vt.*	Dairying.

SUMMARY.

Seniors	16
Juniors	14
Sophomores	29
Freshmen	59
Students in Two Years' Course	24
Students in Ten Weeks' Course	10
Special Students	5
Special Short Course Students	2
Total	159

REGISTER OF GRADUATES.

BACHELORS OF SCIENCE.

NOTE.—The arrangement is: *(a)* Name in full. *(b)* Later degrees taken. *(c)* Residence at time of entering college. *(d)* Occupation, etc. *(e)* Present residence. *Dead. †Present address unknown. It is earnestly requested that each graduate inform the Secretary of the Faculty of any changes that should be made in this list.

1871.

William Preston Ballard, Concord. Farmer.
R. F. D., Route 1, Concord.

Lewis Perkins, Hampton. Contractor.
301 Lake Avenue, Newton Highlands, Mass.

Charles Henry Sanders, Penacook. Merchant. *Penacook.*

3—

1872.

Edwin Bartlett, Bath. Ranchman and Stock Raiser.
Spearville, Ford Co., Kansas.

Frank Alexander White, Bow. Surveyor, Farmer.
Route 4, Concord.

2—

1873.

†Frederick Erasmus Eldredge, Kensington.

James Fred Smith, A. B., A. M. (Dartmouth, 1885; A. M., Stanford, 1900). Principal of High School. *Campbell, Cal.*

Charles Henry Tucker, Plaistow. Carriage Woodworker.
24 Highland Street, Amesbury, Mass.

3—

1874.

Millard Fillmore Hardy, Rev., Nelson. Graduated Theo. Inst., Ct., 1878. Clergyman. *East Jaffrey, N. H.*

*Henry Abbott Sawyer, North Weare.

2—*1

1875.

Walton Herman Aldrich, M. D. (Univ. N. Y. City, 1880), Troy. Physician and Surgeon. *Marlborough.*

†Frank Pierce Curtis. Grocer. *Fitchburg, Mass.*

Frank Veranus Emerson, Lebanon. Manager Emerson Edge Tool Company Works. *Water St., East Lebanon.*

Charles Webster Hardy, M. D. (Mo. Med. Coll., 1881), Marlborough. Physician.

206 So. Main Street, Ottawa, Kansas.

Harvey Jewell, Winchester. Fruit Grower and Market Gardener. *Cromwell, Conn.*

*Charles Ormille Leavitt, Lebanon.

*John Loney McGregor, D. D. S. (Phila. Dental Coll., 1877), M. D. (Dartmouth, 1883), Whitefield.

Eliel Peck, Lebanon, Merchant. *Kimball, Stearns County, Minn.*

Ira William Ramsey, Walpole. *Walpole.*

Orlando Leslie Seward, Keene. Artist.

287 Church Street, Keene.

Emery Mason Willard, Harrisville. Druggist, 15 Union Street, Boston, Mass. *109 Hewlett Street, Roslindale, Mass.*

11—*2

1876.

Herbert Cyril Aldrich, Troy. Insurance and Real Estate.

323 South Hill St., Los Angeles, California.

†Edmund Lawson Brigham, Jaffrey. Mechanic.

Joseph Warren Butterfield, Westmoreland. Farmer.

North Montpelier, Vt.

Arthur French Chamberlain, Westmoreland. Partner of Edson Keith & Co., 132 Michigan Avenue, Chicago, Ill.

6542 Kimbark Avenue, Chicago, Ill.

Anson Ballard Cross, Holyoke, Mass. Contractor and Builder.

Wilmington, Vt.

Warren Webster Kimball, Troy. Merchant. *Troy.*

Daniel Deeth Parker, Fitzwilliam. With Heywood Bros. & Wakefield Co.

Box 56, Gardner, Mass.

7—

1877.

Rollin Kirk Adair, Indian Territory. Hotel.

Chelsea, Indian Ter.

*Homer Brooks, M. D. (N. Y. Hom. Med. Coll., 1881), Franconia.

John Washington Carson, Mont Vernon. Farmer and Land Surveyor. *Francestown.*

*Charles Otto Chubert, Troy.

*Charles Albert Edwards, LL. B. (Univ. of Iowa, 1880), Keene. Keene.

*William Francis Flint, Richmond. Land Surveyor, Horticulturist, Forestry Expert. *Winchester.*

Clinton Camillus Hall, Westmoreland. Farmer.
East Westmoreland.

John Goodrich Henry, M. D. (Dartmouth, 1880), Chesterfield. Physician. *15 Pleasant St., Winchendon, Mass.*

*Charles Pitkin Hollister, North Montpelier, Vt.

George Mirick Holman, M. D., Fitchburg, Mass. Teacher.
334 Boylston St., Boston, Mass.

Charles Appleton Hubbard, Troy. Treasurer United Fruit Company.
Board of Trade Building, 131 State Street, Boston, Mass.

Carlos Augustus Wheeler, East Calais, Vt. Bee Keeper and Farmer. *Bracken, Comal Co., Texas.*

Everard Whittemore, Fitzwilliam. Insurance and Real Estate.
14 River Street, Hudson, Mass.
13—*5

1878.

†Ezra Eastman Adams, Manchester.

*Elmer Kilburn, Marlow.

Charles Edward Record, Fitchburg, Mass. Contractor and Builder. (Greenhouses a specialty.)
73 Green Street, Leominster, Mass.
3—*1

1879.

Charles Hardy Bailey, M. D. (Dartmouth, 1881). Physician.
39 East Broadway, Gardner, Mass., Station A.

Richard Clinton Chapin, Chicopee, Mass. With American Writing Paper Company. *Holyoke, Mass.*

Lucius M. Cragin, Lempster. Farmer.
The Elms, Springfield, Vt.

*Nathaniel Cutler Holmes, Jaffrey.

Fred Charles Parker, Lempster. Commercial Traveler.
5 Liberty Street, Concord.

George Henry Wilkins, M. D. (N. Y. Hom. Med. Coll., 1883), Amherst. Physician.
306 Walnut Street, Newtonville, Mass.
6—*1

1880.

Charles Harvey Hood, Derry. Milk Contractor.
494 Rutherford Avenue, Boston, Mass.
1—

1881.

Edwin Thompson Aldrich, Troy. General Insurance Agent.
Bridgman's Block, Keene.

Henry Lyman Barnard, Troy. Clerk. *Troy.*

*George Jordan Boardman, Lawrence, Mass.

Edwin Franklin Bristol, Harwinton, Conn. Miller and Farmer. *Ascutneyville, Vt.*

Artemas Terald Burleigh. Farmer. *Franklin.*

Frank Dana Ely, Cavendish, Vt. With Vermont Marble Company, Electrician. *Proctor, Vt.*

Sanford Eugene Emery, LL. B. (Albany Law School, 1886), Proctorsville, Vt. Attorney-at-Law. *Proctorsville, Vt.*

Charles Herbert Hazen, Hartford, Vt. Farmer and Market Gardener. *Bethlehem.*

Frank P. Marston, Hartford, Vt. Real Estate and Investments. *White River Junction, Vt.*

William Augustus Megrath, M. D. (Dartmouth, 1886), Cavendish, Vt. Physician. *Loudon.*

Fred Townsend Stanton, Strafford. Farmer. *Strafford Corner.*

Victor Hugo Stickney, M. D. (Dartmouth, 1883), Tyson, Vt. Physician and Surgeon. *Dickinson, N. Dakota.*

Samuel Austin Wallace, Ph. G. (Boston School of Pharmacy, 1886), West Hartford, Vt. Druggist. *Crookston, Minn.*

George Herbert Whitcher, Strafford. Director of the New Hampshire Agricultural Experiment Station, February 22, 1888, to November 1, 1894; Professor of Agriculture of the New Hampshire College, June, 1887, to November 1, 1894. District Superintendent of Schools, August 1, 1900. *Berlin.*

14—*1

1882.

Harvey Lincoln Boutwell, LL. B. (Boston University, 1886), Hopkinton. Attorney-at-Law, 209 Washington Street, Boston, Mass. *37 Pierce Street, Malden, Mass.*

Dana Justin Bugbee, North Pomfret, Vt. Mining in Colorado. *North Pomfret, Vt.*

Robert Fletcher Burleigh, M. D. (Dartmouth, 1887), Franklin. Physician. *South Braintree, Mass.*

La Forrest John Carpenter, Surry. *Cliff Street, Malden, Mass.*

Edwin Preston Dewey, Hanover. Civil Engineer. *City Hall, Long Beach, Cal.*

George Andrew Loveland, LL. B. (University of New York, 1886), Norwich, Vt. Section Director United States Weather Bureau. *1130 So. 20th St., Lincoln, Neb.*

†John Wright Mason, Hanover.

Harlan Addison Nichols, Derry. County Physician.
San Elizario, Texas.

*Frank Elmer Thompson, Stark.

9—*1

1883.

†Elmore Ferdinand Arnold, M. D. (University City of New York, 1885.) Londonderry, Vt. Physician. *New York, N. Y.*

Frank Landor Bigelow, Proctorsville, Vt., Instructor in Mathematics and Sciences, Goddard Seminary, Barre, Vt., 1883-1886. Business. *Rutland, Vt.*

Frederick Stocks Birtwhistle, Troy. Electrical Engineer, Foreign Department General Electric Company, 44 Broad Street, N. Y. *Troy.*

Noice D. Bristol, Harwinton, Conn. Scenic Photographer.
Logan, Ohio.

Frederick Plummer Comings, Lee. Trustee New Hampshire College 1893-1903. Private business.
2310 North 29th Street, Tacoma, Wash.

Frank Harry Follansbee, Canaan. Railway Mail Clerk.
41 Sharon Street, West Medford, Mass.

Adams Clark French, M. D., D. O., Franklin Falls. Physician.
231 So. Hayne Street, Chicago, Ill.

James Edgar Gay, Tunbridge, Vt. Woolen Manufacturer.
Cavendish, Vt.

Elmer Daniel Kelley, Franklin Falls. Farmer and Business.
445 Central Street, Franklin Falls.

Alvah Benjamin Morgan, Canaan. Registered Druggist.
Woodstock, Vt.

William Lincoln Whittier, Deerfield. Foreman of Machine Shop. *121 Rantoul Street, Beverly, Mass.*

Charles Minot Woodward, Hanover. Principal of School.
Rodgers, Bell Co., Texas.

12—

1884.

*Ernest Smith Cummings, Lee.

Fred Carlos Davis, South Reading, Vt. Lawyer, Dealer in Real Estate, and Farmer. *McKinley Block, Springfield, Vt.*

Sylvester Miller Foster, Riverhead, N. Y. Cashier Riverhead Bank, and Coal Dealer. *Riverhead, Suffolk County, N. Y.*

Herbert Harvey Kimball, M. S. (Columbian University, 1900), Hopkinton. Librarian and Climatologist, U. S. Weather Bureau. *Washington, D. C.*

Moses Bisbee Mann, Benton. Inspector of Customs.
Custom House, Boston, Mass.

George Milton Moore, Plymouth, Vt. Real Estate, Insurance Agent. *Main St., Ludlow, Vt.*

Ziba Amherst Norris, Lyme. Dealer in Groceries and Provisions, Wholesale and Retail. *587-593 Washington Street, Dorchester, and 529-533 Dudley Street, Roxbury, Mass. 32 Milville Avenue, Dorchester, Mass.*

Edwin Chapin Thompson, Lee. Section Director U. S. Weather Bureau. *5 Allen Street, San Juan, P. R.*

8—*1

1885.

George Ellsworth Adams, Weston, Vt. Merchant. *Vernal, Utah.*

Ruel Seabury Alden, Lyme. Superintendent of College Farm, 1895-'97. Farm Superintendent. *Box 173, North Uxbridge, Mass.*

Walter Eugene Angier, C. E. (Dartmouth, 1887), West Swanzey. Resident Engineer, Thebes Bridge, Ill. *Office 50 78th Street, Chicago, Ill.*

Edward Alonzo Bailey, West Swanzey. Chair Maker. *55 Pine Street, Keene.*

†Phillips Greenleaf Bickford, Lyme.

Andrew Walter Brill, Riverhead, L. I. With North British and Mercantile Fire Insurance Company, 76 William Street, New York City. *Hempstead, N. Y.*

†Paul Cuff Brooks, Boston, Mass.

†Frank Jay Emerson, Epping.

Allen Hazen, Wilder, Vt. Consulting Engineer. *St. Paul's Building, 220 Broadway, N. Y.*

George Mayo Mullins, Londonderry. Attorney-at-Law. *Fourth and Jefferson Streets, Papillon, Neb.*

Albert Henry Wood, Lebanon. Associate Professor of Agriculture, 1890-'94. Grain Merchant. *Framingham, Mass.*

11—

1886.

Frank Albert Davis, M. B., M. D. (Boston University School of Medicine, 1897, 1898), South Lee. Physician. *815 Beacon Street, Boston, Mass.*

James Ellsworth Harvey, Surry. Photographer. *Clinton, Mass.*

Belezar Stoianoff Ruevsky, Tirnovo, Bulgarie. Instructor in Modern Languages in the State College, "St. Cyrille," Maître au Gymnase, "St. Cyrille," de Gouvernement, Tirnovo, Bulgarie. *Sofia, Bulgaria.*

Madison Templeton Thurber, M. D. (Dartmouth, 1890), Webster. Physician. *95 Savin Hill Avenue, Boston, Mass.*

Edward Hills Wason, New Boston. Attorney-at-Law. Solicitor for Hillsborough County. *146 Main Street, Nashua.*

George Pillsbury Wood, Lebanon. Draftsman in charge, Bureau of Yards and Docks, Navy Department. *3407 Holmead Avenue, N. W., Washington, D. C.*

6—

1887.

William Sprague Currier, Norwich, Vt. Local Forecaster. *U. S. Weather Bureau Office, Toledo, Ohio.*

Arthur Woodbury Hardy, C. E. (Dartmouth, 1889), Hopkinton. Manager Western Sprinkler Risk Association. *240 La Salle Street, Chicago, Ill.*

George Albert Sanborn, Rochester. Salesman for Grand Union Tea Company. *Rochester.*

Hiram Newton Savage, C. E. (Dartmouth), White River Junction, Vt. Member Am. Soc. C. E.; Supervising and Consulting Engineer United States Reclamation Service. *Commercial Club Building, Salt Lake, Utah.*

Bion Leland Waldron, Strafford. Official in charge U. S. Weather Bureau. *U. S. Weather Bureau, Hannibal, Missouri.*

5—

1888.

*Melvin Burnside Carr, North Haverhill. Civil Engineer, B. E. Ry. Co. *28 North Street, Medford, Mass.*

Herbert Grant Davis, South Lee. General Manager Ogdensburg Gas Company; General Manager Ogdensburg Power and Light Company; General Manager Ogdensburg Street Railway Company. *1 Ford Street, Ogdensburg, N. Y.*

Edwin Chandler Gerrish, Webster. Assistant Paymaster for Proprietors of the Locks and Canals on Merrimack River. *66 Broadway, Lowell, Mass.*

†William Nelson Hazen, C. E. (Dartmouth, 1890). Chief Draftsman for the Structural Iron and Steel Co., Bush Street and B. & O. R. R. *Pittsburg, Penn.*

Edward David O'Gara, Hanover. Farmer. *Hanover.*

George Elmer Porter, M. D. (Dartmouth, 1892), Hartford, Vt. Physician. *Marengo, Wayne Co., N. Y.*

George Jonathan Sargent, Canterbury. Civil Engineer. *Canterbury.*

John Warren Smith, M. S. (1900), Grafton. Section Director U. S. Weather Bureau, in charge Columbus, Ohio, and of Ohio Section. Special Lecturer in Meteorology at Ohio State University. *16 East Broad Street, Columbus, Ohio.*

George Elwin Walker, Littleton. Farmer. *Littleton.*

8—*1

1889.

Fred Harvey Colby, Hopkinton. Fruit Grower. *Prosser, Wash.*

†Linwood Carroll Gillis.

*Louis Jerome Hutchinson, Norwich, Vt.

John Lawrence Norris, Lyme. Norris Brothers, Groceries and Provisions, 1673-1679 Washington Street, Boston; 529-535 Dudley Street, Roxbury; and 587-593 Washington Street, Dorchester, Mass. President of the Dairy Association Company, Lyndonville, Vt.; Secretary and Treasurer of Photo Fabric Company of America. *6 Worcester Square, Boston, Mass.*

Charles Walter Earl Scott, Winchester. Mechanic. *Darrington, Wash.*

David Elmer Stone, Hartford, Vt. Grain Merchant. *Framingham Center, Mass.*

Fred Washburne, West Springfield. With Sargent & Co., Foreman of Foundry Department. *56 Carmel Street, New Haven, Conn.*

7—*1

1890.

John Young Jewett, C. E. (Dartmouth, 1895), Gilford. Cement Inspector, Reclamation Service, U. S. Geological Survey. *Chamber of Commerce Bldg., Denver, Colo.*

†Joseph Franklin Preston, Hanover. Clerk. *Boston, Mass.*

Elihu Quinby Sanborn, Webster. Machinist. *Contoocook.*

Clarence Ira Slack, Norwich, Vt. Cashier. *51 North Market Street, Boston, Mass.*

4—

1891.

Ernest Gowell Cole, Hampton. Postmaster. Merchant. *Hampton.*

Russell Marden Everett, Chester. Lawyer. *172 Market Street, Newark, N. J.*

Edward Payson Stone, Canaan Center. Farmer. *Orford, N. H.*

3—

1892.

Percey Lovejoy Barker, C. E. (Dartmouth, 1894), Milford. Acting Supt. of Bridges and Buildings.
Jersey Shore, Penn.

Fred Driggs Fuller, Hanover. Assistant Chemist, New York Agricultural Experiment Station.
84 Lyceum Street, Geneva, N. Y.

Arthur Benezette Hough, Lebanon. Dairy Farmer. *Lebanon.*

†Edward Monroe Stone, C. E. (Dartmouth, 1894). Marlborough. Civil Engineer with Henry A. Wolcott.

4—

1893.

Wilton Everett Britton, Ph. D. (Yale, 1903), Keene. State Entomologist and Entomologist of the Connecticut Agricultural Experiment Station, and Lecturer Yale University.
296 McKinley Ave., New Haven, Conn.

Frank John Bryant, Enfield. Post-office Clerk. *Lebanon.*

Charles Elbert Hewitt, M. M. E. (Cornell, 1895), Hanover. Electrical Engineer and Contractor.
13-21 Park Row Building, New York City.

Charles Lincoln Hubbard, M. E. (1895), Fitzwilliam. Heating and Ventilating Engineer.
551 Boylston St., Boston, Mass.

Orrin Moses James, Northwood. Civil Engineer and Surveyor.
Northwood Narrows.

Arthur Whitmore Smith, M. S. (Wesleyan University, 1895), Norwich, Vt. Assistant Professor of Physics, University of Michigan. *Ann Arbor, Mich.*

6—

1894.

Bert Sargent Brown, Hanover. Farmer. *Hanover.*

Fred Willis Gunn, Keene. Farmer and Fruit Grower.
Keene.

Frederic William Howe, Hollis. Professor of Chemistry and Dietetics, State Normal School, Framingham, Mass., and Scientific Adviser for the Walker Gordon Laboratory Co.
793 Boylston Street, Boston, Mass.

3—

1895.

Frank Stanley Adams, Gilsum. With Vermont Farm Machine Company. *56 Pine Street, Bellows Falls, Vt.*

Frank Clifton Britton, Keene. With the Sullivan Machinery Company of Claremont and Chicago (Costkeeping Department). *31 Chestnut Street, Claremont.*

†Henry Elmer Hill, Plainfield, Vt. With the Arizona Lumber Company.

Charles Arthur Trow, Mont Vernon. Chief Engineer, Irrigation Construction. *Hazen, Nevada.*

4—

1896.

Lewis Harris Kittredge, Keene. Treasurer and Manager of Peerless Motor Car Company. *Lisbon Street, Cleveland, Ohio.*

1—

1897.

Harlan Winifred Barney, Grafton. Business. *333 Walnut Street, Manchester.*

Carrie Augustus Bartlett, Lee. Teacher. *South Lee.*

Mary Blaisdell Bartlett, Epping. Instructor Pinkerton Academy. *Derry.*

Walter French Buck, Manchester. Science Teacher, High School. *Pawtucket, R. I.*

Arthur Willard Colburn, Dracut, Mass. Farmer. *Dracut, Mass.*

Carrie Lydia Comings, Durham. Teacher, Woonsocket High School. *94 Blackstone Street, Woonsocket, R. I.*

Irving Lyford Dennett. Chief Engineer, New York Glucose Company. *Edgewater, N. Y.*

*Mary Elizabeth Comings (Mrs. I. L. Dennett), Durham.

Elwin Henry Forristall, M. Sc. (1900, Columbia), Supt. Mass. Agricultural Coll. Farm. *Amherst, Mass.*

Leslie David Hayes, Durham. Instructor of Manual Training and Chemistry, Rayen School. *215 Arlington St., Youngstown, Ohio.*

John Norton Hunt, Peterborough. *Peterborough.*

Ellery Dunbar Jenkins, Lee. Chemist, Lowell Fertilizer Company. *P. O. Box 105, Lowell, Mass.*

Woodruff Mason, Stamford, Conn. *Balenville, N. Y.*

Roscoe Hart Shaw, Milton. Assistant Chemist, Kansas Agricultural Experiment Station. *Manhattan, Kansas.*

Charles William Vickery, Dover. With Claflin Brothers, Mining Engineers. *Nome City, Alaska.*

Delbert Amos Wheeler, South Ashburnham, Mass. Teacher. *Boston, Mass.*

Everett Sidney Whittemore, Colebrook. Superintendent Stonehurst Farm. *Stonehurst Farm, Intervale.*

17—*1

1898.

*Richard Cole Butterfield, Westmoreland.

Helen Buzzell, Lee. Teacher, Lee, N. H.
R. F. D. 5, Dover.

Bernice Elisabeth Caverno (Mrs. E. H. Hancock), Durham.
Durham.

Burton Albert Corbett, Colebrook. Farmer. *Colebrook.*

Alfred Caverly Durgin, Lee. Farmer and Fruit Grower. *Lee.*

James Alfred Foord, Walpole. Professor of Agriculture, Delaware College. *Newark, Delaware.*

John William Fullerton, Somersworth. Paymaster with Great Falls Woolen Company. *Somersworth.*

Arthur Given, Durham. Assistant Chemist, U. S. Department of Agriculture, Bureau of Chemistry.
1937 13th Street, N. W., Washington, D. C.

Edward Henry Hancock, Belmont. Instructor in Mechanism and Woodwork, New Hampshire College. *Durham.*

Mabel Lucy Hayes, Durham. In charge of Commercial Dept. in High School. *Box 696, Windsor Locks, Conn.*

Tomokichi Hirokawa, B. S. (Massachusetts Institute of Technology), Iamabari, Japan. Electrical Engineer Kyoto Electric Light Company. *Kyoto, Japan.*

Harry Clinton Mathes, Newmarket. Mail Clerk.
25 Belknap Street, Dover.

Herbert Fisher Moore, M. E. (Cornell, 1899), M. M. E. (Cornell, 1903), Penacook. Instructor in Testing Laboratory, College of Engineering, University of Wisconsin.
919 University Avenue, Madison, Wis.

Gerry Austin Morgan, Goffstown. Draftsman with Taft-Pierce Manufacturing Company.
93 Blackstone Street, Woonsocket, R. I.

Harry Putnam Richardson, Milford. With the John Hancock Insurance Company.
346 East Thirty-second Street, Paterson, N. J.

Fred Dexter Sanborn, Ashland. Paper Box Manufacturer. Publisher of Weekly Newspaper and Mgr. Job Printing Plant.
Ashland.

Fred Webster Smith, Franklin Falls. Foreman, Full Fashion Department, Sulloway Hosiery Mill.
121 Glenwood Avenue, Franklin Falls.

Benjamin D. Tolles, Somersworth. With Great Falls Manufacturing Company, Department of Carding.
52 Grove Street, Somersworth.
18—*1

1899.

Henry Clark Baker, South Yarmouth, Mass. Representative Crocker-Wheeler Company.
425 Empire Building, Atlanta, Ga.

‡Harry Everett Barnard, Nashua. Chemist, State Board of Health, State Laboratory of Hygiene. *Concord.*

Harrison Edward Clement, Nashua. Member American Institute Mining Engineers, Mining Engineer, Mechanical and Constructing Engineer, Bingham Consolidated Mining and Smelting Company, Bingham Copper and Gold Mining Company. *700 McCornick Building, Salt Lake City, Utah.*

Irving Atwell Colby, Exeter. Instructor in Machine Design, Sibley College, Cornell University.
119 Stewart Avenue, Ithaca, N. Y.

Willis Daniel Farley Hayden, Hollis. Superintendent Middlebrook Farm. *Dover.*

Frederic Libbey Horton, Dover. Engineering Department General Electric Company.
35 Lovers' Leap Avenue, Lynn, Mass.

William Elmer Hunt, Nashua. First Lieutenant Eighth United States Infantry. *Fort Niagara, New York, N. Y.*

Louis Hobart Kenney, Pownal, Me. Inspecting Draftsman U. S. N., Office of Inspector of Machinery for U. S. Navy, The William Cramp & Sons' Ship and Engine Building Works.
Philadelphia, Pa.

Grace Agnes Mark (Mrs. Herbert F. Moore), Gilsum.
919 University Avenue, Madison, Wis.

Arthur Zebulon Norcross, Rindge. Farmer.
Pomfret Centre, Conn.

Harry Nelson Putney, Franklin. Machinist B. & M. R. R. Shops. *Concord.*

Etta Lillian Simpson, Durham. Principal Grammar School.
Acushnet, Mass.
12—

1900.

Herbert Prescott Andrews, Hollis. Engineer, Century Electric Co. *1007-9-11 Locust St., St. Louis, Mo.*

David Burns Bartlett, Manchester. Law Student, Boston University Law School. *325 Kennard Building, Manchester.*

‡ Alumni trustee.

Frances Burnham, Durham. Teacher Lincoln School.
554 Main Street, Wakefield, Mass.

Blanche Mary Foye, Durham. Teacher in Concord High School.
Concord, Mass.

Charles Elliott Page Mathes. With Wetherbee Allis Company, Clothiers. *456 Central Avenue, Dover.*

Edward Emil Nelson, Nashua. Mining Engineer, Member of American Institute of Mining Engineers.
530-3 East Street, Salt Lake City, Utah.

Alvena Pettee, Durham. Bachelor's Diploma in Domestic Science, Teachers' College, Columbia University, 1903, Professor of Home Economics, Clarkson Memorial Institute of Technology. *16 Elm Street, Potsdam, N. Y.*

Marie Livingstone Robertson (Mrs. Benjamin M. Duggar), Buffalo, N. Y. *809 Virginia Avenue, Columbia, Mo.*

Walter Noah Shipley, Nashua. Testing Department, General Electric Company. *138 Lakeview Avenue, Lynn, Mass.*

Charles Edwin Stillings, Somersworth. With Interborough Rapid Transit Co., New York City.
Sub-Station No. 12, 108 E. 19th St., New York City.

John Ernest Wilson, Hollis. With C. O. D. Electric Works, 638 San Julian Street, Los Angeles, Cal.
Los Angeles, Cal.

Robert Morrill Wright, Hill. Principal Grammar School.
Hill, N. H.

12—

1901.

Henry Harold Calderwood, Nashua. With General Electric Co. *403 Summer St., Lynn, Mass.*

Charles Henry Courser, Warner. Engineer, with Rockingham County Light & Power Co.
7 Columbia St., Portsmouth, N. H.

Alice Emerson Dorr, Dover. *35 Summer Street, Dover, N. H.*

Harry Willis Evans, Portsmouth. Engineering Department, General Electric Company.
671 Western Avenue, Lynn, Mass.

Harry Gilbert Farwell, Keene. Engineering Department, General Electric Company. *403 Summer St., Lynn, Mass.*

Ella Gertrude Gowen, Dover. Giving Lessons in Cookery.
15 Lexington Street, Dover.

Charles Alvum Hunt, Nashua. Second Lieutenant and Battalion Q. M. and Commissary, Twelfth United States Infantry.
Camp Jossmann, Guimaras, P. I.

Edwin Price Jewett, Lakeport. In charge Prescription Department Walker Gordon Laboratory Co.
2112 Michigan Avenue, Chicago, Ill.

Robert McArdle Keown, Pomona, Fla. Instructor in Mechanical Drawing and Machine Design, University of Pennsylvania. *University of Pennsylvania, Philadelphia, Pa.*

Elmer Eugene Lyon, Wentworth. Teacher History and Civil Government, Dixon Academy. *Covington, La.*

George J. Penneo, Hampstead. Farmer. *Hampstead.*

Harold Morrison Runlett, Durham. Wholesale Shoe Business. With Clark Hutchinson Co., 121 Duane Street, New York City. *Durham.*

Edson Albert Straw. Foreman of Box Factory. *Ashland.*

13—

1902.

Mary Doe, Rollinsford. *Rural Route No. 2, Dover.*
Rural Route No. 2, Dover.

Edwin W. Gilmartin, Nashua. Engineering Department, General Electric Company. *132 So. Common St., Lynn, Mass.*

John C. Kendall, Peterborough. Instructor in Dairying, North Carolina College of Agriculture and Mechanic Arts.
West Raleigh, N. C.

Harry M. Lee, Moultonborough. Foreman Three Rivers Farm.
Dover.

Abiel A. Livermore, Wilton. Rose Grower.
153 Greenwood St., Auburn, R. I.

George E. Merrill, B. Ag. (Cornell University, 1903), Newburyport, Mass. Farmer, Indian Rock Farm.
Hampton Falls.

Charles A. Payne, Portsmouth. Engineering Department, General Electric Company. *50 Mall Street, West Lynn, Mass.*

Eugene P. Runlett, Durham. With Williams & Clark, Shoe Manufacturers, Lynn, Mass.

Arthur L. Sullivan, Suncook. Assistant Chemist, Internal Revenue. *Treasury Department, Washington, D. C.*

9—

1903.

Harry David Batchelor, West Upton, Mass. Assistant Chemist, Experiment Station, New Hampshire College, Durham, N. H.

Edgar Forest Bickford, Rochester. Westinghouse Electric & Manufacturing Company. *P. O. Box 496, East Pittsburg, Pa.*

Frank Ray Brown, Durham. Machinist with Draper Manufacturing Company.
21 Union Street, Bancroft Parkway, Hopedale, Mass.

Everett William Burbeck, Haverhill. Mining Engineer with Oliver Iron Mining Company.
P. O. Box 370, or Spruce Office, Eveleth, Minn.

†Everett Garfield Davis, Newmarket.

Albert Noah Otis, Durham. Testing Department, General Electric Company, Schenectady, N. Y.
31 Eagle St., Schenectady, N. Y.

Ralph Harvey Rollins, East Concord. Engineer, Irrigation Construction. *Hazen, Nev.*

Morris Archer Stewart, Dover. Research Assistant, Massachusetts Institute of Technology, Boston, Mass.
9 Alston Street, Somerville, Mass.

David Albert Watson, Durham. Assistant in Highland Conservatories.
175 Stevens St. or 19 Robbins St., Lowell, Mass.

Melvin Johnson White, Farmington. Principal High School.
17 Main Street, Upton, Mass.

10—

1904.

Leander Ashton, Pittsfield. Gardner, Hardtcourt, North Andover, Mass.

†Walter Allen Barker, Pittsfield.

Edgar Charles Bickford, Durham. Boston Elevated Power Station, Boston, Mass.

Percy Anderson Campbell, Litchfield. Herdsman, Brooklawn Farms. *Morris Plains, New Jersey.*

Carrol Winfred Farr, North Weare. Dairy Farmer.
North Weare, N. H.

Joseph Ezra Goodrich, New Durham. Instructor in Science and Agriculture at Nichols Academy, Dudley, Mass.

†George Herbert Hill, La Crosse, Wis.

Thomas Jefferson Laton, Nashua. Testing Department, General Electric Company. *132 So. Common Street, Lynn, Mass.*

Raymond Louis Lunt, Dover. Surveyor.
Box 14, Dover, N. H.

Arthur Ronello Merrill, North Bridgton, Me. Instructor in Animal Husbandry and Dairying, Baron de Hirsch Agricultural and Industrial School, Woodbine, New Jersey.

Samuel Ambrose Richardson, Charlestown. Surveyor.
Box 235 Charlestown, N. H.

TWO YEARS' COURSE IN AGRICULTURE.

†Lyman Charles Stratton, Hollis. (1897.) Superintendent Dairy Farm.

Charles Wesley Martin, Durham. (1898.) Hotel Clerk, Raymond Hotel, Pasadena, California.

George Henry Wheeler, Temple. (1898.) Farmer. *Temple.*

Fred Joseph Durell, Newmarket. (1900.) Farmer. *Newmarket.*

Harry Alvin Elliott, Lyme. (1900.) Farmer. *Lyme.*

Edward Augustus Hills, Hollis. (1900.) Farmer. *Hollis.*

Albert Cate Knowles, Epsom. (1900.) Farmer and Seed Agent. With Dunlap & Sons, Nashua, N. H. *Epsom.*

†Robert Hale Pearson, Webster. (1900.)

Charles Nicklin Blodgett, Hebron. (1901.) Manager Breezy Point Farm, Breezy Point. *Warren.*

Harry Douglass Verder, Hollis. (1901.) Stock Raiser. *Hollis.*

†Rufus Leonard Cushman, North Adams, Mass. (1901.)

†George R. Brew, Lowell, Mass. (1902.)

Carroll W. Farr, North Weare. (1902.) B. S. New Hampshire College, 1904.

George F. Hills, Hollis. (1902.) With H. S. Miller, Florist, West Fairview, Cumberland Co., Pa.

†Walter E. Quimby, Deerfield. (1902.)

Walter P. Tenney, Chester. (1902.) Fruit Farmer. *Chester.*

†Thornton N. Weeks, Greenfield. (1902.)

Robert E. Whittier, Deerfield. (1902.) Supt. Maplewood Farm, Danvers, Mass.

Edward C. Wilson, Wilton. (1902.) Live Stock Commission, Union Stock Yards, care of Wood Bros. *406 W. 60 Place, Chicago, Ill.*

†Harry Garfield Brierley. (1903.) Dover.

†George Grover Manning. (1903.) Boston, Mass.

†James Henry Nixon. (1903.) East Brentwood.

†Roscoe Franklin Swain. (1903.) South Hampton.

Erland Graves Batchelder. (1904.) Wilton. Dairying and Gardening, Kimball Heights Farm. *R. F. D. No. 3, Wilton, N. H.*

‡Wesley Pillsbury Flint. (1904.) Newburyport, Mass.

Henry Marston Shurbert. (1904.) Northwood Ridge.

‡Special student New Hampshire College.

SUMMARY.

Graduates, Bachelors of Science, 1871-1904	259
Graduates, Two Years' Course	26
Agriculturists	53
Architects	1
Business Pursuits	54
Chemists	6
Clergyman	1
Civil, Mechanical, Electrical, and Mining Engineers	32
Draftsmen	5
Lawyers	5
Manufactures and Mechanics	17
Mining	6
Physicians	13
Teachers	30
Unknown	23
United States Army	2
United States Weather Bureau	6
Dead	17

ALPHABETICAL LIST OF GRADUATES.

Adams, E. E., 1878.
Adams, G. E., 1885.
Adams, F. S., 1895.
Adair, R. K., 1877.
Alden, R. S., 1885.
Aldrich, H. C., 1876.
Aldrich, W. H., 1875.
Aldrich, T. E., 1881.
Andrews, H. P., 1900.
Angier, W. E., 1885.
Arnold, E. F., 1883.
Ashton, L., 1904.
Bailey, C. H., 1879.
Bailey, E. A., 1885.
Baker, H. C., 1899.
Ballard, W. P., 1871.
Barker, P. L., 1892.
Barker, W. A., 1904.
Barnard, H. E., 1899.
Barnard, H. L., 1881.
Barney, H. W., 1897.
Bartlett, Miss C. A., 1897.
Bartlett, D. B., 1900.
Bartlett, E., 1872.
Bartlett, Miss M. B., 1897.
Batchelder, E. G. (2 year), 1904.
Batchelor, H. D., 1903.
Bickford, E. C., 1904.
Bickford, E. F., 1903.
Bickford, P. G., 1885.
Bigelow, F. L., 1883.
Birtwhistle, F. S., 1883.
Blodgett, C. N. (2 year), 1901.
*Boardman, G. J., 1881.
Boutwell, H. L., 1882.
Brew, G. R. (2 year), 1902.
Brierley, H. G. (2 year), 1903.
Brigham, E. L., 1876.
Brill, A. W., 1885.
Bristol, E. F., 1881.
Bristol, N. D., 1883.
Britton, F. C., 1895.
Britton, W. E., 1893.
*Brooks, H., 1877.
Brooks, P. C., 1885.
Brown, B. S., 1894.
Brown, F. R., 1903.
Bryant, F. J., 1893.
Buck, W. F., 1897.
Bugbee, D. J., 1882.
Burbeck, E. W., 1903.
Burleigh, A. T., 1881.
Burleigh, R. F. 1882.
Burnham, Miss F., 1900.
Butterfield, J. W., 1876.
*Butterfield, R. C., 1898.
Buzzell, Miss H., 1898.
Calderwood, H. H., 1901.
Campbell, P. A., 1904.
Carpenter, L. J., 1882.
*Carr, M. B., 1888.
Carson, J. W., 1877.
Caverno, Miss B. E., 1898.
Chamberlin, A. F., 1876.
Chapin, R. C., 1879.
*Chubert, C. O., 1877.
Clement, H. E., 1899.
Colby, F. H., 1889.
Colby, I. A., 1899.
Colburn, A. W., 1897.
Cole, E. G., 1891.
Comings, Miss C. L., 1897.
Comings, F. P., 1883.
*Comings, Miss M. E., 1897.
Corbett, B. A., 1898.
Courser, C. H., 1900.

* Dead.

Cragin, L. M., 1879.
Cross, A. B., 1876.
*Cummings, E. S., 1884.
Currier, W. S., 1887.
Curtis, F. P., 1875.
Davis, E. G., 1903.
Davis, F. A., 1886.
Davis, F. C., 1884.
Davis, H. G., 1888.
Dennett, I. L., 1897.
Dewey, E. P., 1882.
Doe, Miss Mary, 1902.
Dorr, Miss A. E., 1901.
Durell, F. J. (2 year), 1900.
Durgin, A. C., 1898.
*Edwards, C. A., 1877.
Eldredge, F. E., 1873.
Elliott, H. A. (2 year), 1900.
Ely, F. D., 1881.
Emerson, F. J., 1885.
Emerson, F. V., 1875.
Emery, S. E., 1881.
Evans, H. W., 1901.
Everett, R. M., 1891.
Farr, C. W. 1904 (2 year), 1902.
Farwell, H. G., 1901.
*Flint, W. F., 1877.
Flint, W. P. (2 year), 1904.
Follansbee, F. H., 1883.
Foord, J. A., 1898.
Forristall, E. H., 1897.
Foster, S. M., 1884.
Foye, Miss B. M., 1900.
French, A. C., 1883.
Fuller, F. D., 1892.
Fullerton, J. W., 1898.
Gay, J. E., 1883.
Gerrish, E. C., 1888.
Gillis, L. C., 1889.
Gilmartin, E. W., 1902.
Given, A., 1898.
Goodrich, J. E., 1904.
Gowen, Miss E. G., 1901.
Gunn, F. W., 1894.
Hall, C. C., 1877.
Hancock, E. H., 1898.
Hardy, A. W., 1887.
Hardy, C. W., 1875.
Hardy, M. F., 1874.
Harvey, J. E., 1886.
Hayden, W. D. F., 1899.
Hayes, L. D., 1897.
Hayes, Miss M. L., 1898.
Hazen, A., 1885.
Hazen, C. H., 1881.
Hazen, W. N., 1888.
Henry, J. G., 1877.
Hewitt, C. E., 1893.
Hill, G. H., 1904.
Hill, H. E., 1894.
Hills, E. A. (2 year), 1900.
Hills, G. F. (2 year), 1902.
Hirakawa, T., 1898.
*Hollister, C. P., 1877.
Holman, G. M., 1877.
*Holmes, N. C., 1879.
Hood, C. H., 1880.
Horton, F. L., 1899.
Hough, A. B., 1892.
Howe, F. W., 1894.
Hubbard, C. A., 1877.
Hubbard, C. L., 1893.
Hunt, C. A., 1901.
Hunt, J. N., 1897.
Hunt, W. E., 1899.
*Hutchinson, L. J., 1889.
James, O. M., 1893.
Jenkins, E. D., 1897.
Jewell, H., 1875.
Jewett, J. Y., 1890.
Jewett, E. P., 1901.
Kelley, E. D., 1883.
Kendall, J. C., 1902.
Kenney, L. H., 1899.
Keown, R. McA., 1901.
Kimball, H. H., 1884.
Kimball, W. W., 1876.
*Kilburn, E., 1878.
Kittredge, L. H., 1896.

*Dead.

Knowles, A. C. (2 year), 1900.
Laton, T. J., 1904.
*Leavitt, C. O., 1875.
Lee, H. M., 1902.
Livermore, A. A., 1902.
Loveland, G. A., 1882.
Lunt, R. L., 1904.
Lyon, E. E., 1901.
Mann, M. B., 1884.
Manning, G. G. (2 year), 1903.
Mark, Miss G. A., 1899.
*McGregor, J. L., 1875.
Marston, F. P., 1881.
Mason, J. W., 1882.
Mason, W., 1897.
Martin, C. W. (2 year), 1898.
Mathes, C. E. P., 1900.
Mathes, H. C., 1898.
Megrath, W. A., 1881.
Merrill, A. R., 1904.
Merrill, G. E., 1902.
Moore, G. M., 1884.
Moore, H. F., 1898.
Morgan, A. B., 1883.
Morgan, G. A., 1898.
Mullins, G. M., 1885.
Nelson, E. E., 1900.
Nichols, H. A., 1882.
Nixon, J. H. (2 year), 1903.
Norcross, A. Z., 1899.
Norris, J. L., 1889.
Norris, Z. A., 1884.
O'Gara, E. D., 1888.
Parker, D. D., 1876.
Parker, F. C., 1879.
Payne, C. A., 1902.
Pearson, R. H. (2 year), 1900.
Peck, E., 1875.
Penneo, G. J., 1901.
Perkins, L., 1871.
Pettee, Miss A., 1900.
Porter, G. E., 1888.
Preston, J. F., 1890.
Putney, H. N., 1899.
Quinby, W. E. (2 year), 1902.
Ramsey, I. W., 1875.
Record, C. E., 1878.
Richardson, H. P., 1898.
Richardson, S. A., 1904.
Robertson, Miss M. L., 1900.
Rollins, R. H., 1903.
Ruevsky, B. S., 1886.
Runlett, E. P., 1902.
Runlett, H. M., 1901.
Sanborn, E. Q., 1890.
Sanborn, F. D., 1898.
Sanborn, G. A., 1887.
Sanders, C. H., 1871.
Sargent, G. J., 1888.
*Sawyer, H. A., 1874.
Savage, H. N., 1887.
Scott, C. W. E., 1889.
Seward, O. L., 1875.
Shaw, R. H., 1897.
Shipley, W. N., 1900.
Shurbert, H. M. (2 year), 1904.
Simpson, Miss E. L., 1899.
Slack, C. I., 1890.
Smith, A. W., 1893.
Smith, F. W., 1898.
Smith, J. F., 1873.
Smith, J. W., 1888.
Stanton, F. T., 1881.
Stewart, M. A., 1903.
Stickney, V. H., 1881.
Stillings, C. E., 1900.
Stone, D. E., 1889.
Stone, E. M., 1892.
Stone, E. P., 1891.
Stratton, L. C. (2 year), 1897.
Straw, A. E., 1901.
Sullivan, A. L., 1902.
Swain, R. F. (2 year), 1903.
Tenney, W. P. (2 year), 1902.
Thompson, E. C., 1884.
*Thompson, F. E., 1882.
Thurber, M. F., 1886.
Tolles, B. D., 1898.

*Dead.

Trow, C. A., 1895.
Tucker, C. H., 1873.
Verder, H. D. (2 year), 1901.
Vickery, C. W., 1897.
Waldron, B. L., 1887.
Walker, G. E., 1888.
Wallace, S. A., 1881.
Washburn, F., 1889.
Wason, E. H., 1886.
Watson, D. G., 1903.
Weeks, T. N. (2 year), 1902.
Wheeler, C. A., 1877.
Wheeler, D. A., 1897.
Wheeler, G. H. (2 year), 1898.
White, F. A., 1872.
White, M. J., 1903.
Whitcher, G. H., 1881.
Whittemore, E., 1877.
Whittemore, E. S., 1897.
Whittier, R. E. (2 year), 1902.
Whittier, W. L., 1883.
Wilkins, G. H., 1879.
Willard, E. M., 1875.
Wilson, E. C. (2 year), 1902.
Wilson, J. E., 1900.
Wood, A. H., 1885.
Wood, G. P., 1886.
Woodward, C. M., 1883.
Wright, R. M., 1900.

SPECIMEN ENTRANCE EXAMINATION PAPERS FOR FOUR-YEAR COURSES.

ALGEBRA.

1. Define algebra, quantity, coefficient, exponent. Explain positive and negative quantities. Give the signification of fractional and negative exponents. Illustrate.

2. Add $\frac{3}{5}ax^{\frac{1}{2}}-\frac{1}{2}a\sqrt{x}$ and $3bx^2-\frac{2}{3}ax^{\frac{1}{2}}+4b$.

3. Multiply:

$(-4ab)$, $(3\sqrt{ab})$, $(-2\sqrt{-ab})$, $(3\sqrt{-ab})$, $(-a\sqrt{b})$, $(\sqrt{ab})$.

4. Find the prime factors of x^6+y^6, $x^{-1},-y^{-6}$, $x^{2m}+x^m-2$.

5. Reduce $\frac{1}{a^{\frac{1}{3}}b^{\frac{1}{4}}c^{\frac{2}{7}}}$, $\frac{1}{\sqrt{a+\sqrt{b}}}$, $\frac{1}{a^{\frac{1}{2}}+b^{\frac{1}{5}}}$ to equivalent fractions having rational denominators.

6. Solve for x and y $\frac{2}{ax}+\frac{3}{by}=5$ and $\frac{5}{ax}-\frac{3}{by}=2$.

7. $(x-y)^5$, $(\frac{2}{5}x^{\frac{1}{3}}y^{\frac{1}{2}})^{\frac{1}{3}}$, $(x-2a+3a^2)^2$. Perform operations indicated.

8. $3ax^2-2x+3b=0$. Solve for x

9. Insert two arithmetical means between c and d.

10. A crew can row a miles in b hours down stream, and c miles in d hours against the stream. Find the rate in miles per hour of the current, and of the crew in still water.

ARITHMETIC.

1. Define arithmetic, fraction, per cent., interest, proportion, decimal.

2. From $3\frac{5}{7}$ take $1\frac{1}{3}+1\frac{3}{7}$.

3. $3.014+27.900\div.047$.

4. $\frac{\frac{6}{7}}{\frac{5}{8}}\times\frac{4}{3}\div\frac{6}{11}$.

5. Two men engage in business. One puts in $1,000 for 12 months; the other $2,000 for 15 months. They gain $500. How shall it be divided between them?

6. Find the simple, annual, and compound interest on $1,200 for 3 years, 2 months, and 7 days, at 6 per cent.

7. If 2 men in 3 days can cut 10 acres of grass, in how many days can 3 men cut 8 acres under same conditions?

8. Find square root of 31407.296.

9. Define meter, gram, litre, stere.

10. A box is 2 meters long, 1.5 meters wide, and 5 decimeters high. What is its capacity in litres?

BOTANY.

1. What are the three principal parts of a plant, and what does each do for the plant?

2. What is the embryo? Of what parts does it consist? Where does the root originate? What part of the root takes food material from the soil?

3. What are the principal steps or periods in the life history of a plant?

4. Define node, internode, petiole, peduncle, stipule, bract, axil of leaf, compound leaf.

5. Draw diagrams of the following leaves: (*a*) entire ovate; (*b*) lanceolate serrate; (*c*) lobed; (*d*) palmately cleft; (*e*) pinnately parted.

6. Draw diagrams of the following forms of inflorescence: raceme, spike, head, umbel, cyme.

7. Name five of the earliest blooming plants of New Hampshire and five which have their flowers in catkins.

8. To what families do the following plants belong: cucumber, peach, lettuce, cabbage, potato, corn, onions, celery, clover, strawberry?

9. How would you distinguish between an elm and an oak, a pine and a hemlock, an ash and a hickory?

10. What is the difference between a fruit and a seed?

ENGLISH.

The composition must be correct in spelling, grammar, and punctuation.

I.

Select any *four* of the following topics, and write a short composition on each:

1. The Speech of Nestor.
2. Priam in the Tent of Achilles.
3. The Story of the Caskets.
4. Sir Roger at Church.
5. Characteristics of Dr. Primrose.
6. The Return of the Knight.
7. The Robbery of Silas Marner.

II.

Omit *one*.

1. Macbeth and Lady Macbeth compared.
2. The supernatural in "Comus."
3. From the standpoint of Macaulay, compare Milton and Addison.

This part of the examination presupposes the thorough study of each of the works named in this division. In addition the candidate may be required to answer questions involving the essentials of English grammar and composition. Inability to answer such questions will be considered a sufficient ground for refusing admission.

FRENCH.

1. (*a*) Synopsis: First person singular, *vouloir*; third singular, *aller*; third plural, *finir*. (*b*) Principal parts, *faire, venir, mettre, voir, prendre.*

2. Translate: (1) Have you given him any money? (2) This book is better than mine. (3) They lost their mother a week ago. (4) I have no sugar. (5) Give me

this pen, if you please. (6) I shall see him to-morrow, and he will give it to me. (7) I fear that you will lose the money which I have given to you. (8) She has gone to Boston to-day, but she will be in Durham to-morrow. (9) The woman whom we have seen in the garden is very young. (10) He arrived in America June 4, 1899. (Write out the date.)

3. Translation at sight.

4. Translate: (a) Il parlait encore quand il vit la flamme du fusil d' Orlanduccio, et presque en même temps un second coup partit à sa gauche, de l' autre côté du sentier, tiré par un homme qu'il n'avait point aperçu et qu'il ajustait posté derrière un autre mur. Les deux balles l' atteignirent: l'une, celle d' Orlanduccio, lui traversa le bras gauche, qu'il lui présentait en le couchant en joue; l'autre le frappa à la poitrine, déchira son habit, mais, rencontrant heureusement la lame de son stylet, s'aplatit dessus et ne lui fit qu'une contusion légère. Le bras gauche d'Orsa tomba immobile le long de sa cuisse, et le canon de son fusil s'abaissa un instant; mais il le releva aussitôt, et, dirigeant son arme de sa seule main droite, il fit feu sur Orlanduccio. La tête de son ennemi, qu'il ne découvrait que jusqu'aux yeux, disparut derrière le mur. La fumée sortie de son arme montait lentement vers le ciel; aucun mouvement derrière le mur, pas le plus léger bruit. Sans la douleur qu'il ressentait au bras, il aurait pu croire que ces hommes sur qui il venait de tirer étaient des fantômes de son imagination. [Mérimée, Colomba.]

(b) Cela vient des nouveaux maîtres de Longueval, deux Américaines . . . Madame Scott et Miss Percival. Retenez bien leurs noms et priez pour elles ce soir.

Puis il se sauvait, sans attendre les remerciements; à travers les champs, à travers les bois, de hammeau en hameau, de chaumière, il allait, il allait, il allait . . . Une sorte de griserie lui montait au cerveau. Partout sur son passage, c'étaient des cris de joie et d'étonnement. Tous ces louis d'or tombaient, comme par miracle, dans ces

pauvres mains habituées à recevoir de petites piéces de monnaie blanche. Le curé fit même des folies, des vraies folies; il était lancé, il ne se connaissait plus. Il donnait à ceux-la mêmes qui ne demandaient pas. [Halévy, L'Abbé Constantin.]

GERMAN.

1. (a) Principal parts of brechen, gehen, halten, lesen, schlagen. (b) Synopsis third person singular, singen.

2. Translate: (1) The boy's father is a count, and his mother is a princess. (2) Good, industrious children are the joy of their parents. (3) Does his sister give him the book? (4) The letter which you gave me is on the table. (5) Yesterday was the fourth of September, 1901. (6) The sun has set and the moon is rising. (7) Have you already forgotten what you promised? (8) If you had come, you would have heard good music. (9) I am obliged to go to Berlin, but I should like to go to Paris. (10) She told us that her husband was dead, and that she had no money.

3. Translate: (a) Wie er hinunter in das Hotel kam, hörte er die heftige Stimme eines der Kellner oder des Wirts und eine bittende Frauenstimme dazwischen; und als er neugierig geworden, hinzutrat, um wenigstens zu sehen, was es dort gebe, bemerkte er eine junge, sehr einfach, aber sauber gekleidete Dame, deren Gesicht ihm merkwürdiger Weise bekannt vorkam, die sich schuchtern und mit groszen Thränen in den Augen gegen den ihr unverschämt gegenüberstehenden Oberkellner verteidigte.—[*Gerstaecker Irrfahrten.*]

(b) Zwei lange Jahre waren vergangen, die ersten Reformationskämpfe, viel schwere Tage waren an Breisach vorübergezogen, Hans hatte sich durch nichts beirren lassen, unverdrossen hatte er weiter gearbeitet, ohne nach rechts oder nach links zu schauen, und endlich im Sommer des Jahres 1526 erschien er auf dem Rathaus und erklärte das Werk als vollendet.—[*Hillern, Hoeher, als die Kirche.*]

(c) Elisabeth setzte sich unter eine uberhängende Buche und lauschte aufmerksam nach allen Seiten; Reinhardt sasz einige Schritte davon auf einem Baumstumpf und sah schweigend nach ihr hinüber. Die Sonne stand gerade über ihnen; es war glühende Mittagshitze; kleine goldglänzende, stahlblaue Fliegen standen flügelschwingend in der Luft; rings um sie her ein feines Schwirren und Summen, und manchmal hörte man tief im Walde das Hämmern der Spechte und das Kreischen der andern Waldvögel.—[*Storm, Immensee.*]

GRECIAN HISTORY.

1. Give an account of the voyage of the Argonauts.

2. Draw a map showing Asia Minor, Macedonia, and the principal Grecian cities.

3. Locate, and with a sentence for each describe the following: Bosphorus, Arcadia, Cyprus, Olympia, Syracuse, Thebes, Lesbos, Propontis, Salamis, Babylon.

4. Sketch the lives of the following: Pythagoras, Pisistratus, Tyrtæus, Lycurgus.

5. Give a brief account of the Peloponnesian War.

6. Give a brief account of the Expedition of the Ten Thousand.

7. Give an account of the life and work of Heredotus.

8. Explain the principles of the Stoics and of the Epicureans.

PHYSICAL GEOGRAPHY.

1. Is it now seed-time, or harvest-time, in the Transvaal?

2. Is it now day, or night, in Manila.

3. Describe the climate of Havana, Pekin, and Cape Nome.

4. State the causes of the variations in season, climate, day, and night.

5. Describe the trade winds.

6. What ocean currents produce the fogs on the Grand Banks? Why?

7. What causes the high tides in the Bay of Fundy?

8. Describe the principal physical divisions of the United States.

9. Describe the largest river-system in the world.

10. Show the relationship between New Hampshire's physical features and the occupations of its people.

PHYSICS.

1. What is motion? Show how motion is purely relative. A pendulum at the highest point of its path is at rest; what has become of the energy it possessed when moving? Show by illustration that energy when transformed is not all available. In what two ways may we recognize a force? The mass of a given train is one million pounds; how much work must the engine do simply to get the train up to a speed of thirty miles an hour, regardless of resistance? A uniform straight lever, ten feet long, balances at a point three feet from one end; when twelve pounds are hung from this end, and an unknown weight from the other, find the unknown weight, if the lever itself weighs eight pounds.

2. Outline the accepted theory of heat. What is meant by the temperature of a body? Explain what occurs when a pond freezes over, and show how fish-life is preserved by this provision of nature. Explain conduction, convection, and radiation of heat.

3. What relation is there between heat and light? What obvious distinction? How is the path of light revealed in a dark room? How much deeper is water immediately under a bather than it appears to be? Describe the appearance of water to one looking outward from the shore. Explain the decomposition of white light by a prism.

4. In what does sound have its origin? Explain the

nature of the transmission of sound. Why can sounds often be heard farther at night than by day? Explain what is meant by the harmonics of a vibrating string.

5. Describe the mariner's compass. Why does not a freely floating magnetic needle move bodily toward the north magnetic pole? Explain how water may be decomposed by an electric current. Why are not birds on a telegraph wire killed by the passage of a current?

PLANE GEOMETRY.

1. Define equal, equivalent, parallel, perpendicular, parallelogram, trapezoid, mean proportion, third proportional, limit of a variable quantity. Give theorem of limits.

2. Theorem: If two parallels are cut by a transversal the alternate interior angles are equal.

3. The sum of the angles of any polygon is equal to two right angles taken as many times, less two, as the polygon has sides.

4. If the non-parallel sides of a trapezoid are equal, its diagonals are also equal.

5. If the number of sides of an inscribed polygon is even, the sum of the alternate angles is equal to as many right angles as the polygon has sides, less two.

6. If any two chords be drawn through a fixed point within a circle, the product of the segments of one chord is equal to the product of the segments of the other.

7. If two of the medians of a triangle are equal, the triangle is isosceles.

8. The number of diagonals of a polygon of b sides is how many?

ROMAN HISTORY.

1. What do we actually know about the early history of Rome?

2. What were the early Roman laws of debtor and creditor?

3. Give the history of the first Punic War.

4. Give a brief but comprehensive account of each of the following: Cæsar, Cicero, Catiline, Jugurtha, Sulla, Pyrrhus, Cleopatra, Mithridates, Vespasian.

5. Give an account of the founding of Constantinople.

6. State fully the causes of the decline of the Roman Empire.

7. Give the facts which bear upon Roman agriculture.

8. Locate, and with a sentence for each describe the following: Pontus, Caucasus, Cyprus, Rhine, Rhone, Sicily, Adriatic, Armenia, Constantinople, Syracuse.

UNITED STATES HISTORY AND CONSTITUTION.

A.

Give full statement of collateral reading.

B.

1. Give an account of Coronado's expedition, stating the approximate time of it.

2. Give a brief account of Virginia during the Puritan supremacy in England; of Maryland; of Massachusetts.

3. What was done at the Albany congress of 1754? Who was the most important member? What plan was proposed? What objections were made? What results followed?

4. Give a brief account of each of the following, stating what great service he rendered to the United States: Thomas Paine, Samuel Adams, John Jay.

5. Explain the principal points about the Treaty of Ghent. What was done about the principal things that led to the war? Give the leading facts about the Hartford Convention.

6. Explain the principle involved and the importance of each of the following: Ordinance of 1787, Wilmot Proviso, Dred Scott Case.

7. Starting with 1789, explain when and how each addition has been made to the territory of the United States.

C.

1. State fully the provisions for amending the constitution of the United States.

2. State fully the provisions for electing the president of the United States.

3. State the qualifications, the term, and the election provisions for senators; for the members of the House of Representatives.

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